



INTELLECTUAL

OBSERVER

**BEAUTIFUL
& OTHER**

**SCIENTIFIC
PLATES**



1076

R1561805



Library
of the
University of Toronto

THE
INTELLECTUAL OBSERVER :

A REVIEW OF NATURAL HISTORY, MICROSCOPIC
RESEARCH, AND RECREATIVE SCIENCE;

ALSO

THE STUDENT,

*BEING THE CONTINUATION OF THE INTELLECTUAL
OBSERVER.*

A COLLECTION OF EIGHTY SUPERBLY COLOURED
PLATES OF NATURAL HISTORY AND
BOTANICAL SPECIMENS,

INCLUDING

*Caterpillars, Fungi, Corals, Geological Subjects, Crustacea,
Fossils, Land and Sea Birds, Lepidoptera, Insects, Moths,
Fresh and Salt Water Fishes, Flowers, Weeds,
Pottery, Coins, Medals, Astronomy,
Electricity, and numerous
other subjects.*

LONDON.

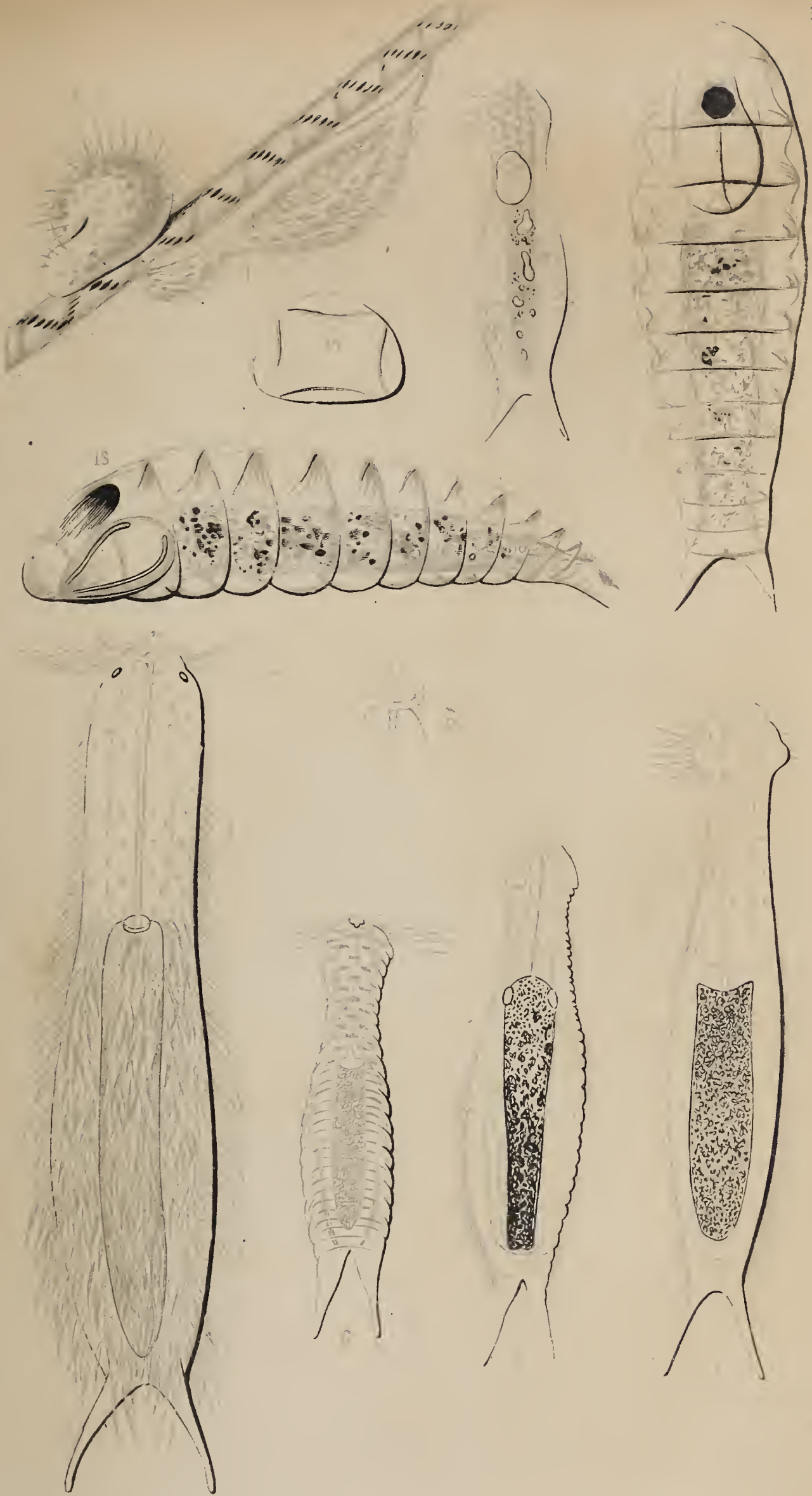


T. W. Fairholt, F.S.A.

1. Glass Lamp with painted surface, (Early Arabic)
2. Ewer, in 'Henri Deux' Ware
3. Gilt Cup, given by Henry VIII. to Barber-Surgeons' Company.
4. Silver Cup, partially gilt, given by Charles II to ditto.
5. Cup in black and white Limoges enamel, gilt, (Baron Kollschill.)



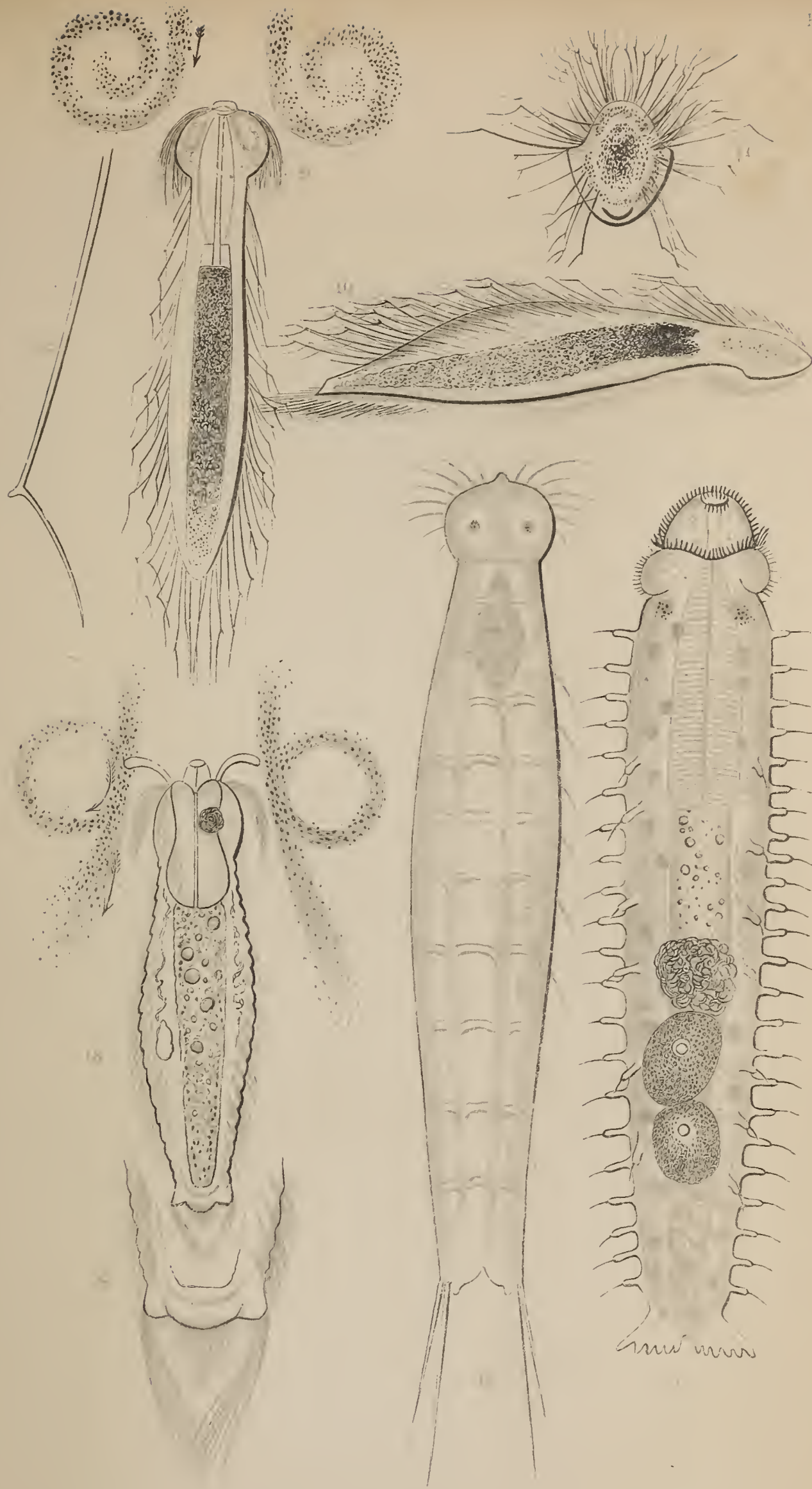
Digitized by the Internet Archive
in 2018 with funding from
University of Toronto



P. H. Gosse, ad viv.

HAIRY-BACKED ANIMALCULES.
Chaetonotidæ.

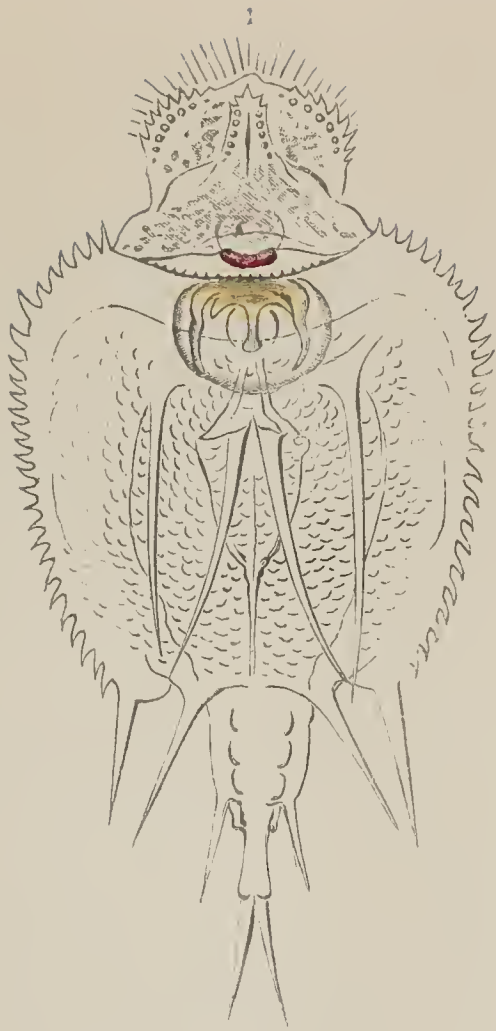
- 1, *Chaetonotus latus*, crawling on a thread of *Conferva*; 2, in the act of turning;
3, viewed from above. 4, *C. maximus*; 5, the mouth and oculiform specks, more
highly magnified. 6, *C. squammatus*. 7, *C. Slackiæ*. 8, *C. gracilis*.
9, *Taphrocampa annulosa*, viewed from above; 10, viewed from the left side;
11, ideal transverse section.



P. H. Gosse, ad viv.

HAIRY-BACKED ANIMALCULES.
Chaetonotidae.

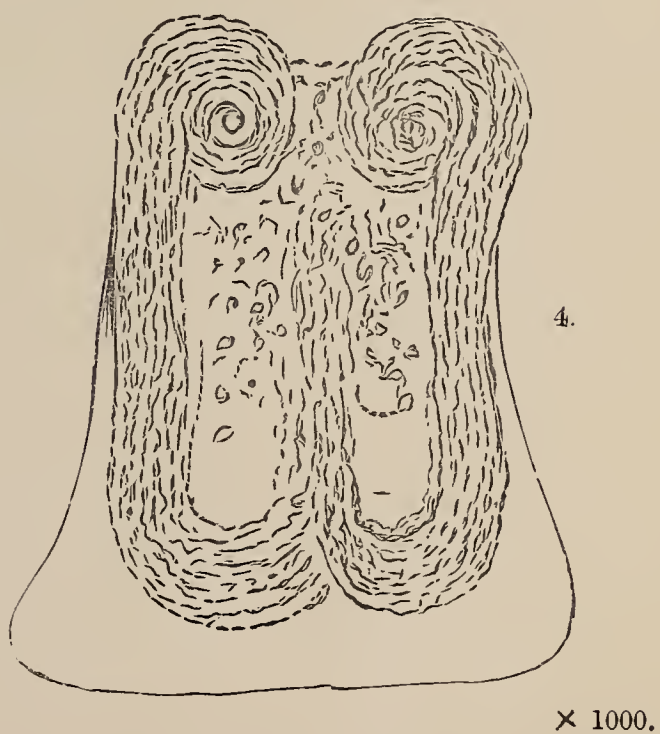
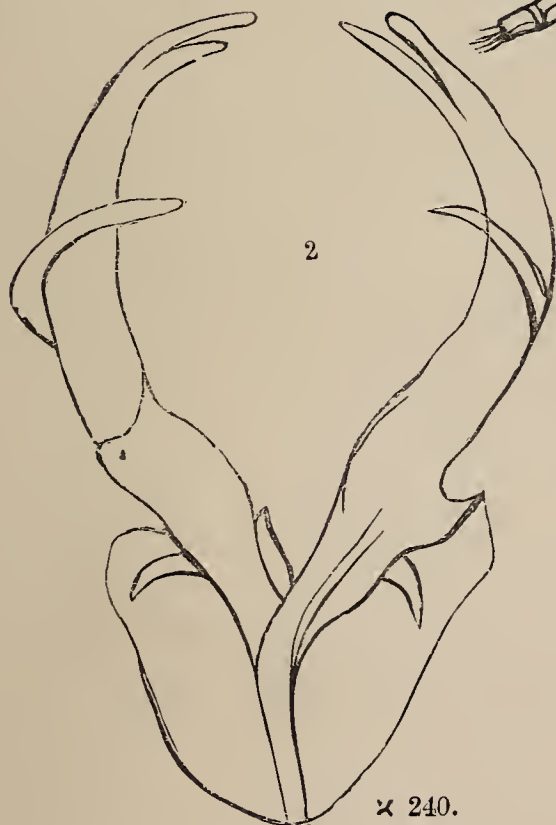
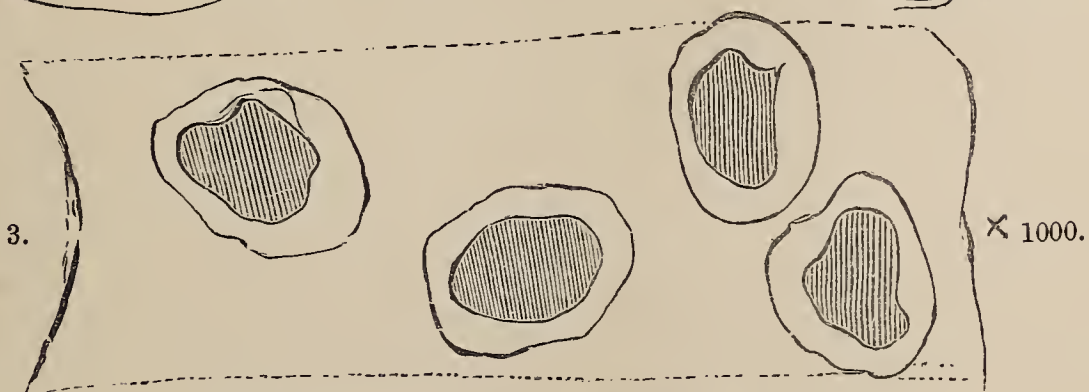
9, *Dasydytes goniathrix*, viewed from above; 10, viewed from the right side; 11, viewed from the front; 12, one of the bristles greatly magnified. 13, *D. antenniger*; 14, the caudal pencils more highly magnified. 15, *Turbaneia hyalina*, (after Schulze.) 16, *Echinodera Dujardini*, (after Dujardin.)
N.B.—All the figs., except 5, 13, and 14, are magnified 300 diam., and all, except 13 and 16, are from the life.



P. H. Gosse, ad viv.

DINOCHARIS COLLINSII.

Mag. 400 diam.





Cephalosiphon linnæi.





VEGETABLE MORTARS.

Sphærobolus stellatus, fig. 1 to 5.
Ptilobolus crystallinus, fig. 6 to 8.



TRUFFLES AND MORELS.

1.—*Morchella esculenta*.
 2.—*Morchella hybrida*.
 3.—*Gyromitra esculenta*.

4.—*Tuber oestioum*.
 5.—*Melanogaster variegatus*.
 6.—Ascus of *Tuber rufum*.





FERRUGINOUS SPORED AGARICS.

- | | |
|--|---|
| 1. <i>Agaricus Arrhenii</i> . Fr. $\frac{2}{3}$ nat. size. | 6. <i>Agaricus sapineus</i> . Fr. Nat. size. |
| 2. — <i>præcox</i> , P. $\frac{2}{3}$ nat. size. | 7. — <i>erinaceus</i> , Fr. Nat. size. |
| 3. — <i>pudicus</i> , Bull. $\frac{2}{3}$ nat. size. | 8. — <i>apalus</i> . Fr. $\frac{1}{3}$ nat. size. |
| 4. — <i>versipellis</i> . Fr. $\frac{1}{2}$ nat. size. | 9. — <i>opluens</i> , Batsch. Nat. size. |
| 5. — <i>focculosus</i> . Berk. Nat. size. | |



EGG FUNGI.

(Plate II.)

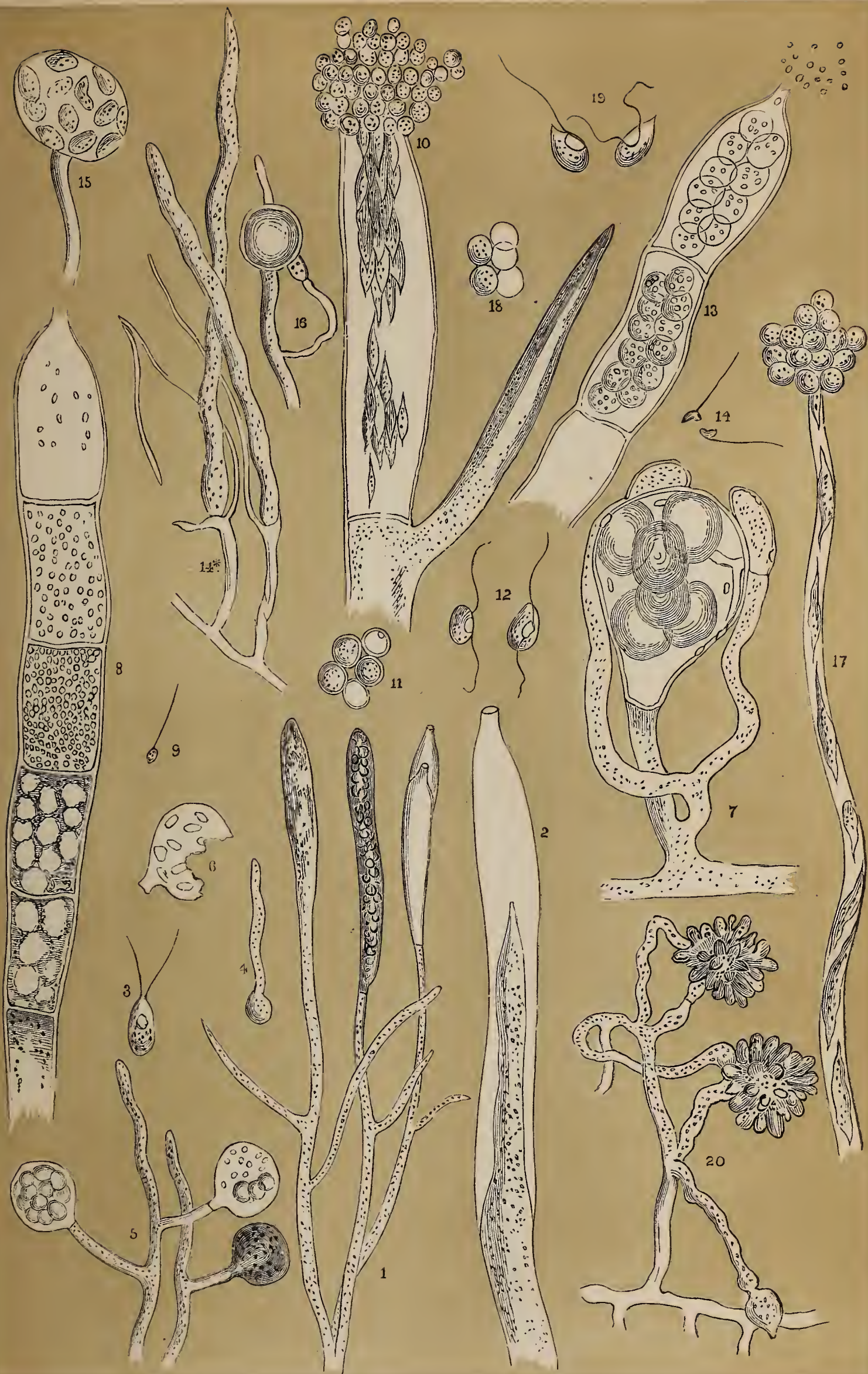
- 6.—*Calathiscus sepia*, Mont.
- 7.—*Aseröe viridis*, Berk. and Hook, fl.
- 8.—*Clathrus pusillus*, Berk.

- 9.—*Ilcodictyon gracile*, Berk.
- 10.—*Lysurus aseröeformis*, Corda.



GERMINATION OF FERN SPORES.

1. Spores of *Lastræa dilatata*. 2. Spores of *L. filix-mas*.
 3. *Osmunda regalis*. 3' Back of same. 4. *Polypodium phegopteris*. 4'. When young.
 5. *Platycerum alcinorne*, and 7, 8, 9, to 13. 6. *Lastræa rigida*.
 6'. The same young. 7 to 13. Progressive development of *Platycerum alcinorne*.
 A. First new cell. B. Old cell. G. Primary vesicle and germ.
 F. foramen. R. Radia. P. Extine. M. Fern always appears here.

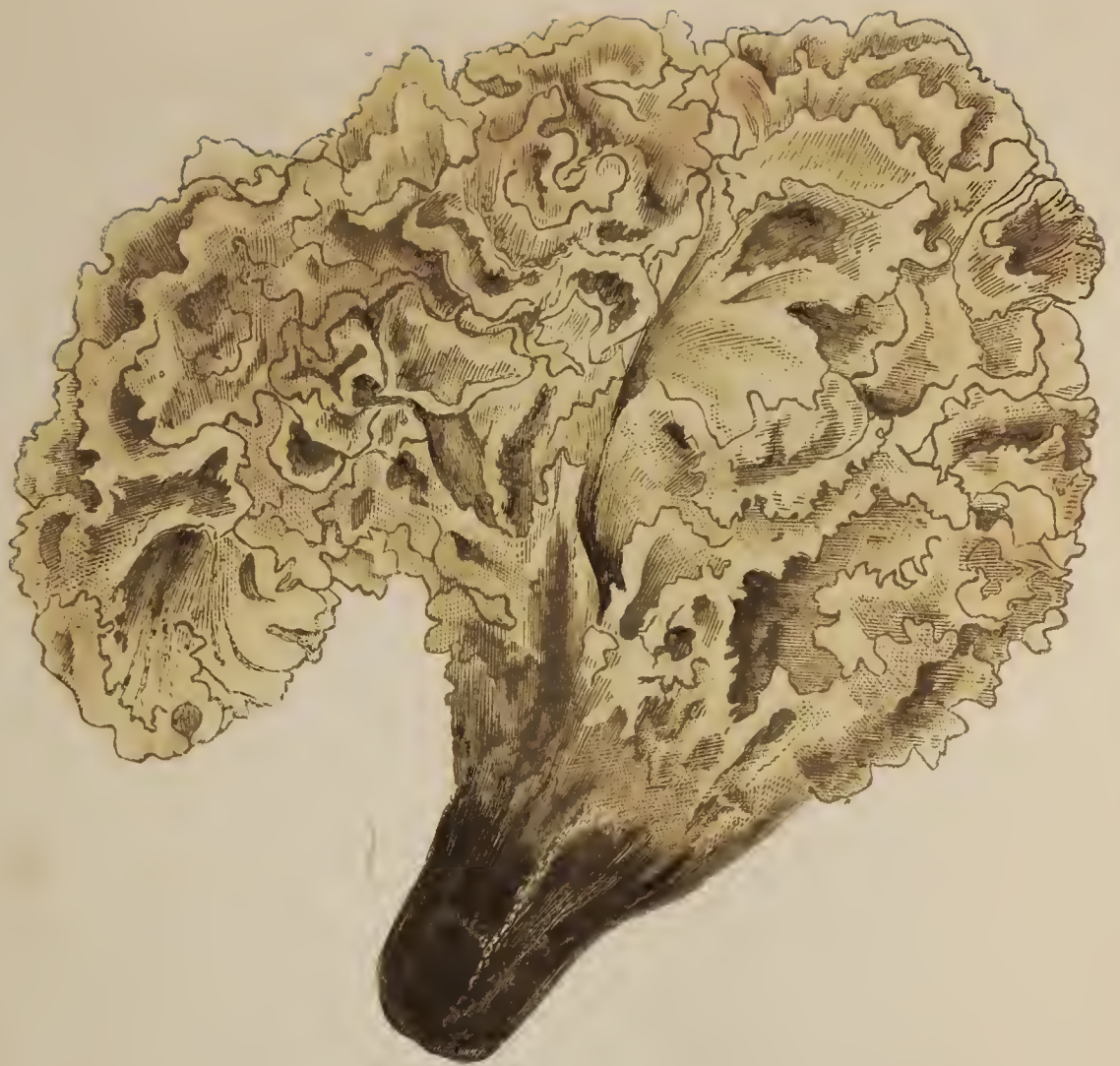


EGG PARASITES.

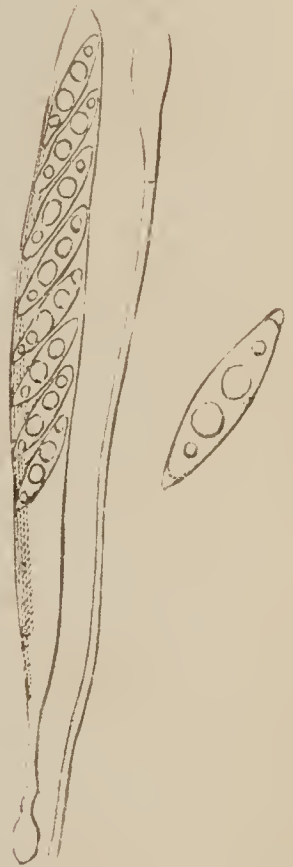
1, 2, 3, 4, 5, 6, *Saprolegnia ferax*. 7, *S. monoica*. 8, 9, *S. dioica*.
 10, 11, 12, *Achlya prolifera*. 13, 14, *A. dioica*. 14*, 15, 16, *Pythium monospermum*.
 17, 18, 19, 20, *Aphanomyces stellatus*.



Resting Spores of Fungi.



1



1. Sparassis crista. 2. Rhizina undulata.



FUNGI.

- 1.—*Agaricus incanus*, Fr. var.
 2.—*Agaricus flammans*, Fr.
 3.—*Agaricus albo-cyaneus*, Desm.
 4.—*Agaricus appendiculatus*, Bull.

- 5.—*Agaricus bullaceus*, Bull.
 6.—*Russula emetica*, Fr.
 7.—*Mitrula paludosa*, Fr.



NITELLA TRANSLUCENS.
(Natural size.)

a. b. Portions of Stem, (as at A. B.) mag. 25 diam. f' Antheridial Filaments, with immature Antherozoids, 450 diam. f'' Mature ditto, 450 diam. g Detached Antherozoid after Dr. Carpenter, about 800 diam. i Nucule seed.



CYCADS.

Fig. A. *Encephalartos Caffer*, Lehm.

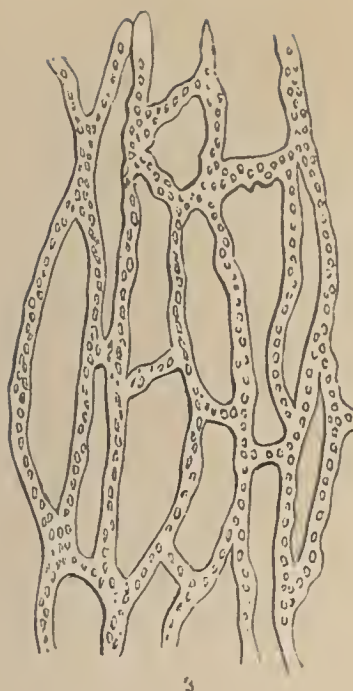
Fig. B. Male cone of *Stangeria paradoxa*, Moore. With seed and leaflet quarter natural size, showing venation.

Fig. C. Female cone of *Macrozamia spiralis*.

Fig. D. *Bowenia spectabilis*, Hook. 1. General appearance of plant. 2. Form of leaves. 3. Male cone half natural size.



2



3



1



4

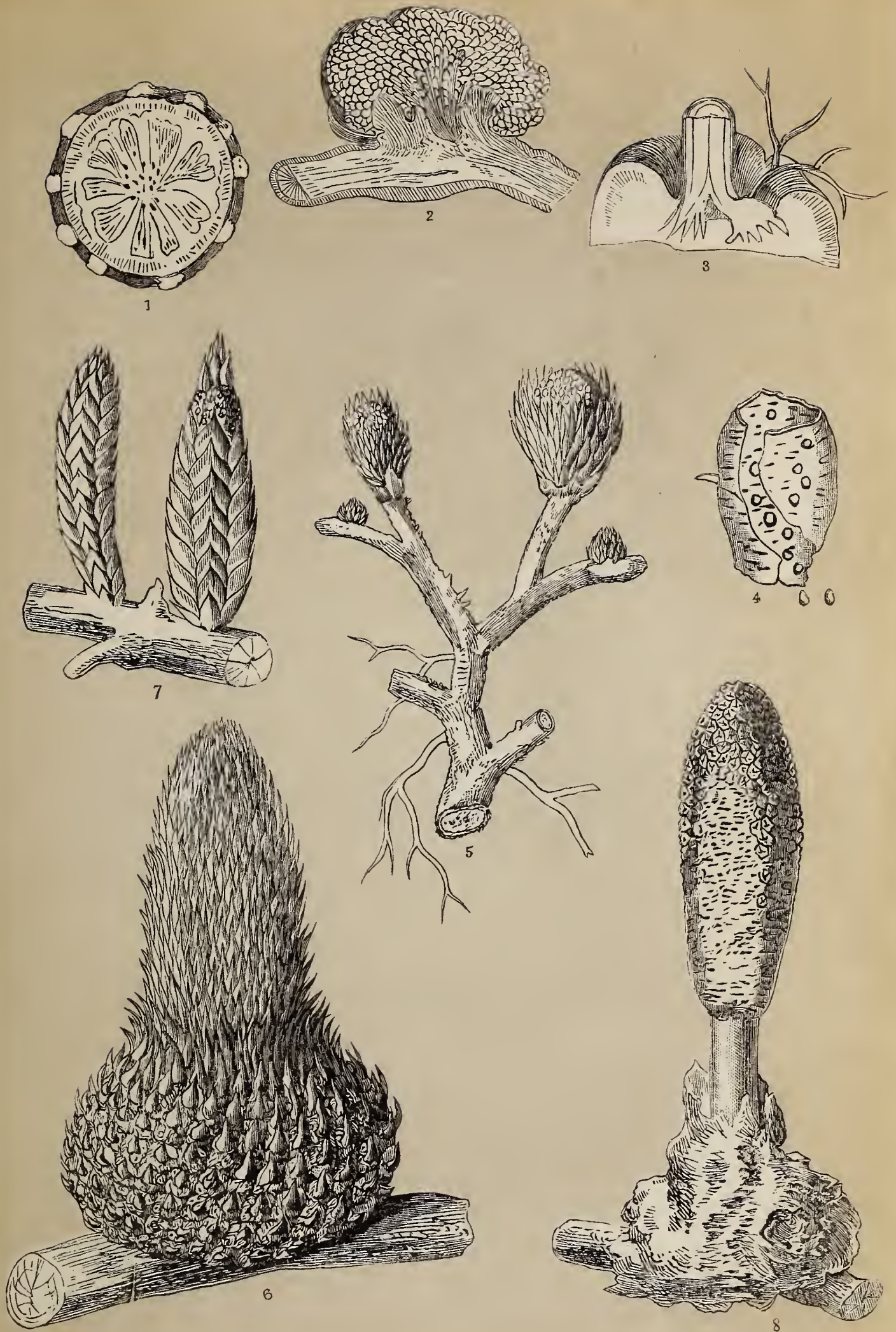


5

THE GENUS FICUS.

- 1.—Banyan tree, (*Ficus Indica*, L.)
- 2.—Palm encircled by *F. Indica*.
- 3.—Laticiferous tissue of *F. elastica*, Rox.

- 4.—Section of Common Fig, (*F. carica*, L.)
- 5.—Open receptacle of *Dorstenia contrayerva*, L.



BALANOPHORACEÆ.

- | | |
|---|--|
| 1. Transverse section of rhizome of <i>Balanophora involucrata</i> . H.f. | 4. Single cell from cellular tissue magnified, shewing wax globules. |
| 2. Vertical section of <i>Helosis Mexicana</i> , shewing its attachment to the root. | 5. Portion of a plant of <i>Langsdorffia rubiginosa</i> . |
| 3. Vertical section of <i>Langsdorffia rubiginosa</i> , shewing its attachment to the root. | 6. Plant of <i>Lophophytum Weddellii</i> . H.f. |
| | 7. Male plant of <i>Phyllocoryne Jamaicensis</i> . H.f. |
| | 8. Male plant of <i>Rhopalonemispallidus</i> . Jung. |

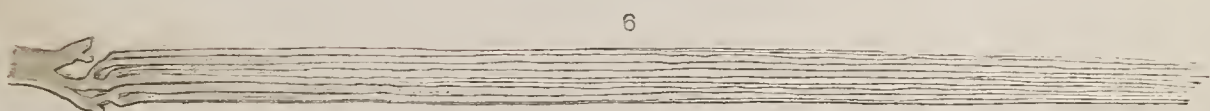
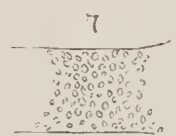
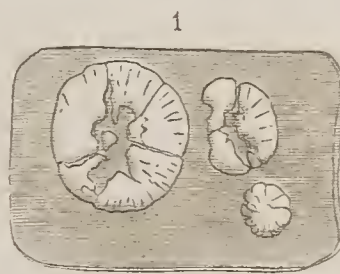
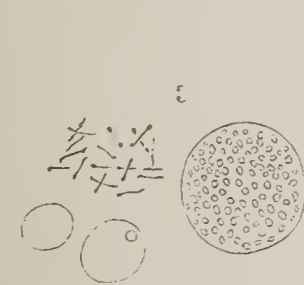
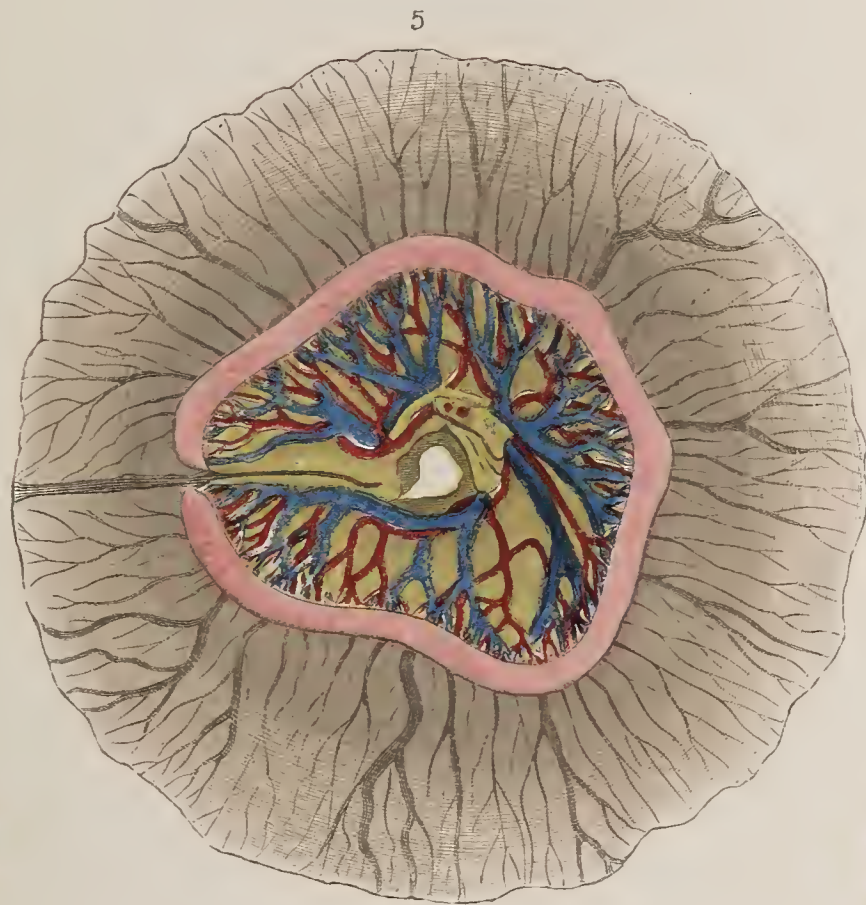
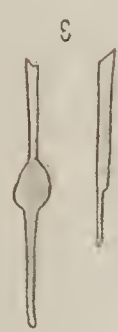
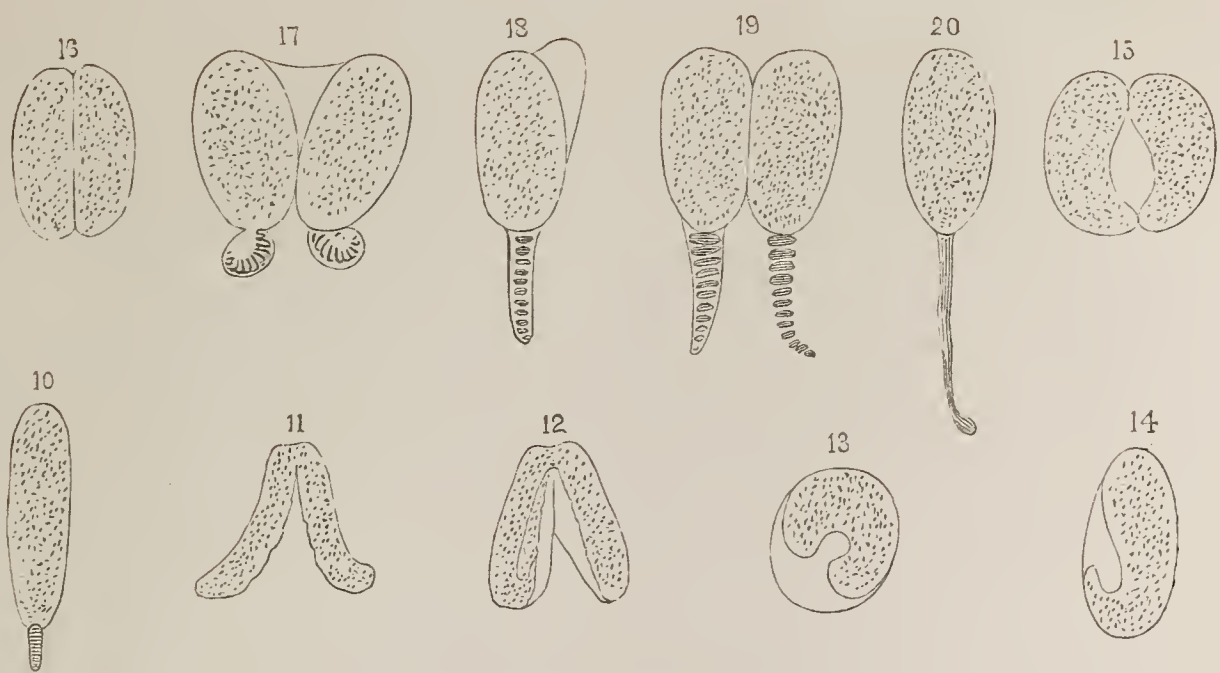


MANGROVES.

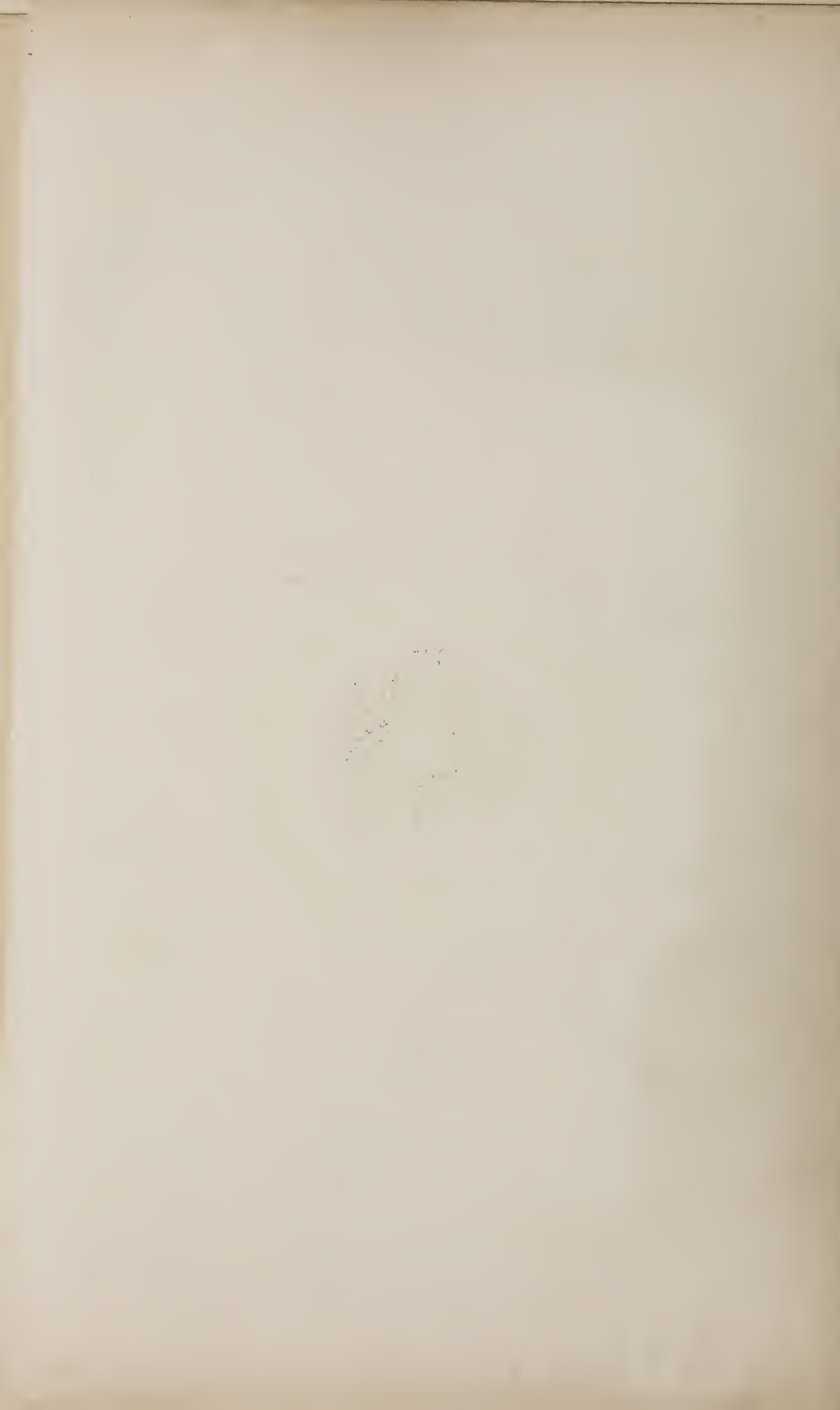
Rhizophoraceæ.



ARAUCARIA.



T.S. Collier, Ed.



1

2

6

3

10

7

11

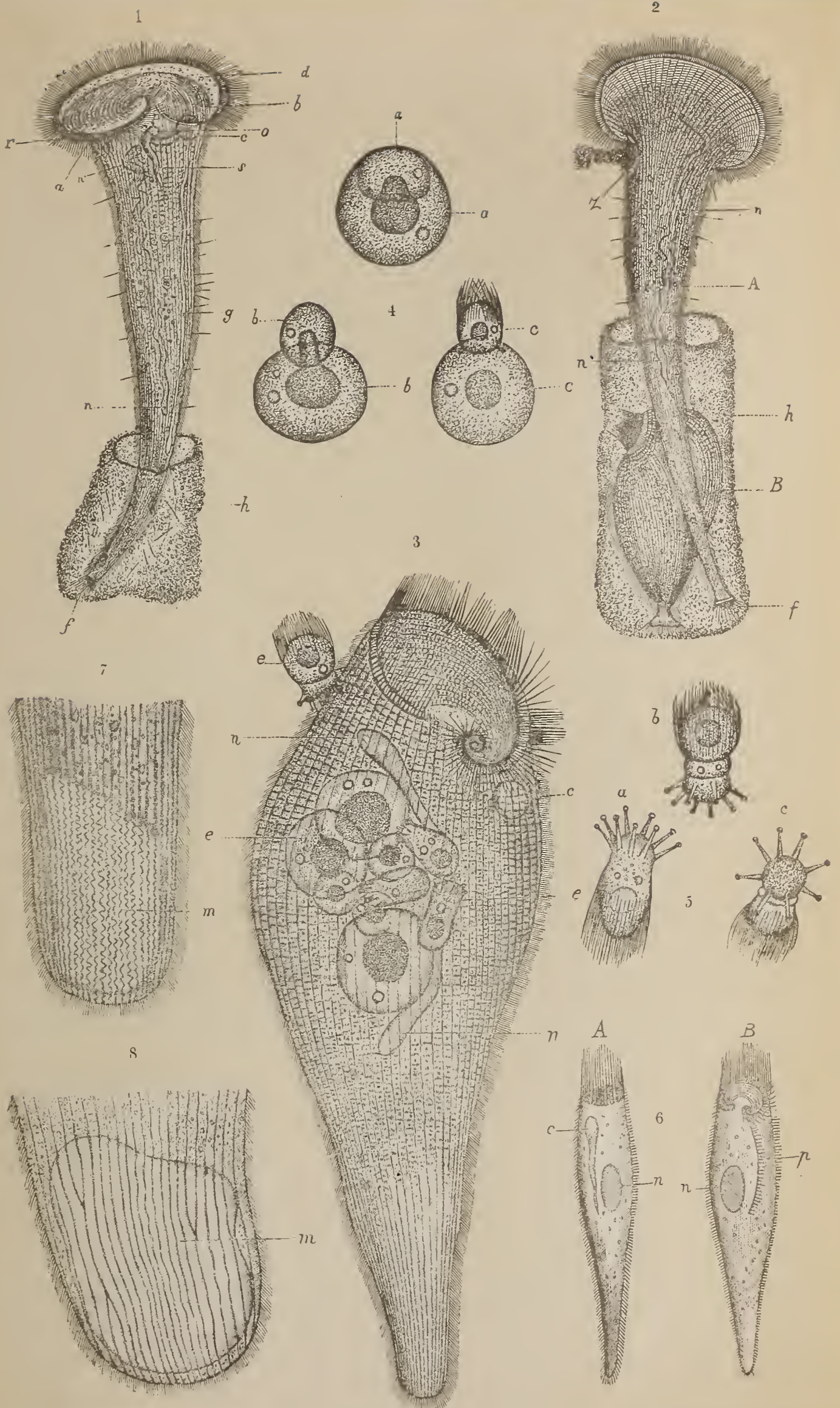
9

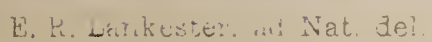
8

4

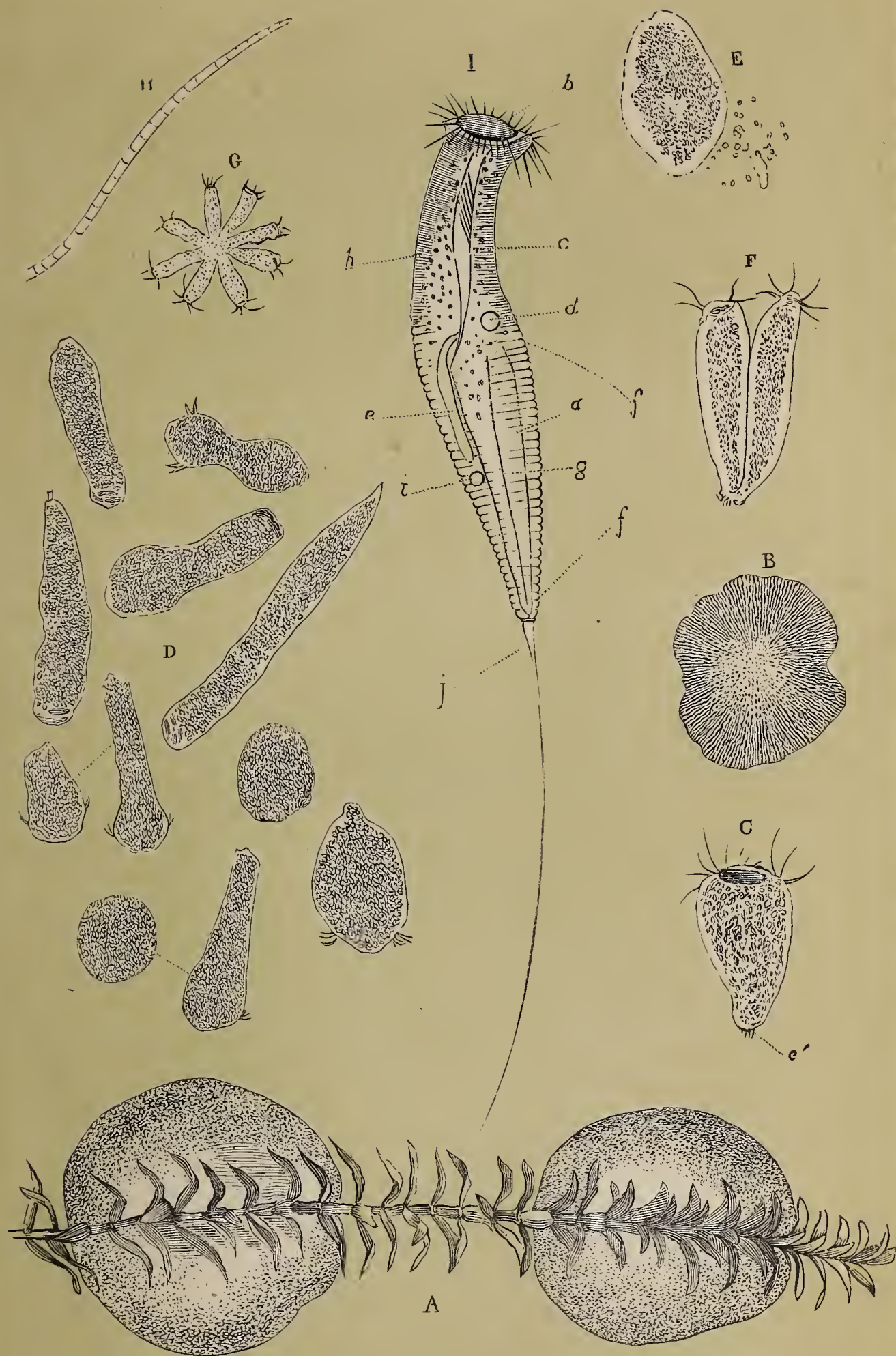


STENTOR POLYMORPHUS. FIG. 1 to 8.
S. COERULEUS. FIG. 9, 10, 11. (After Stenm.)

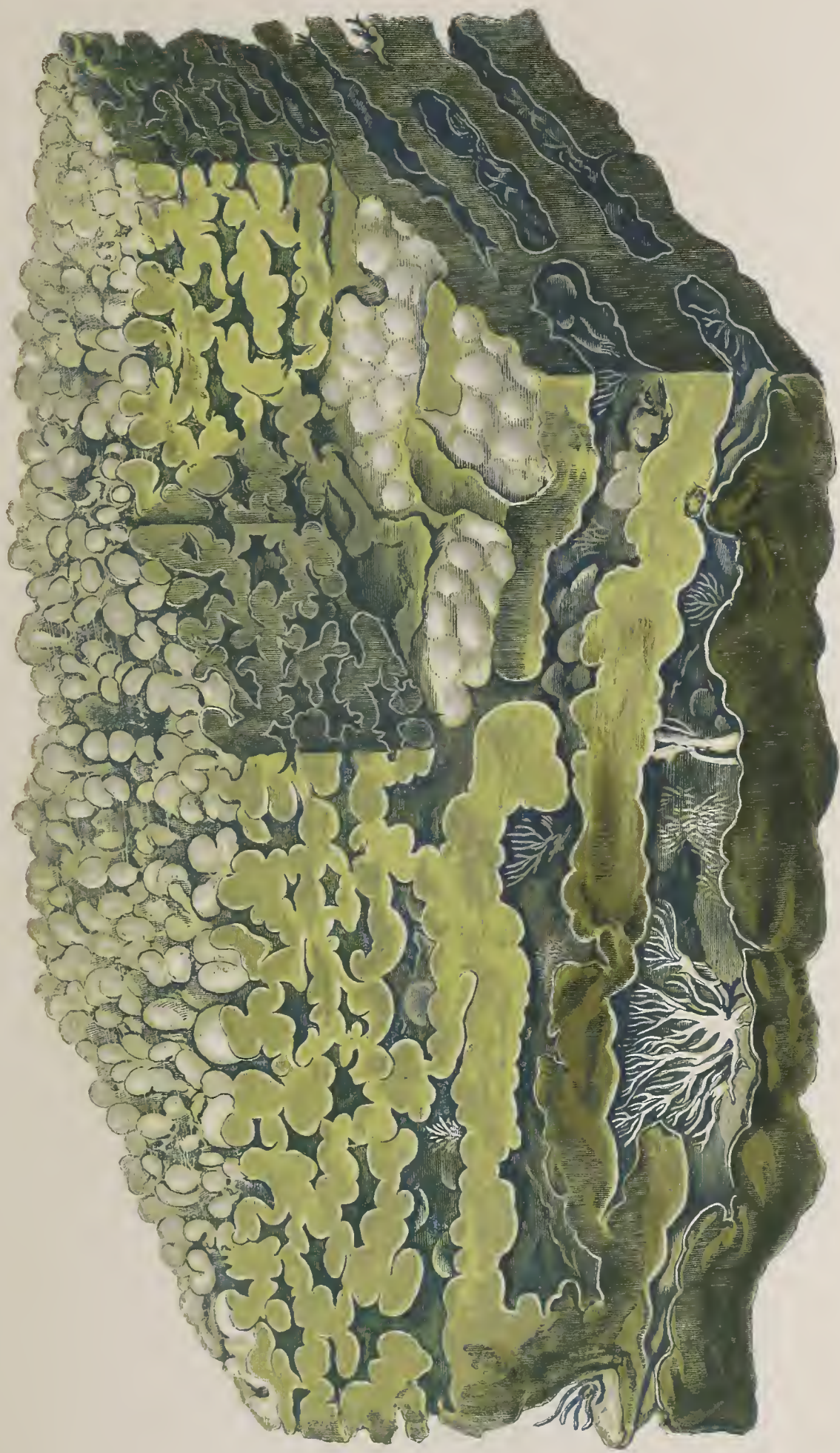




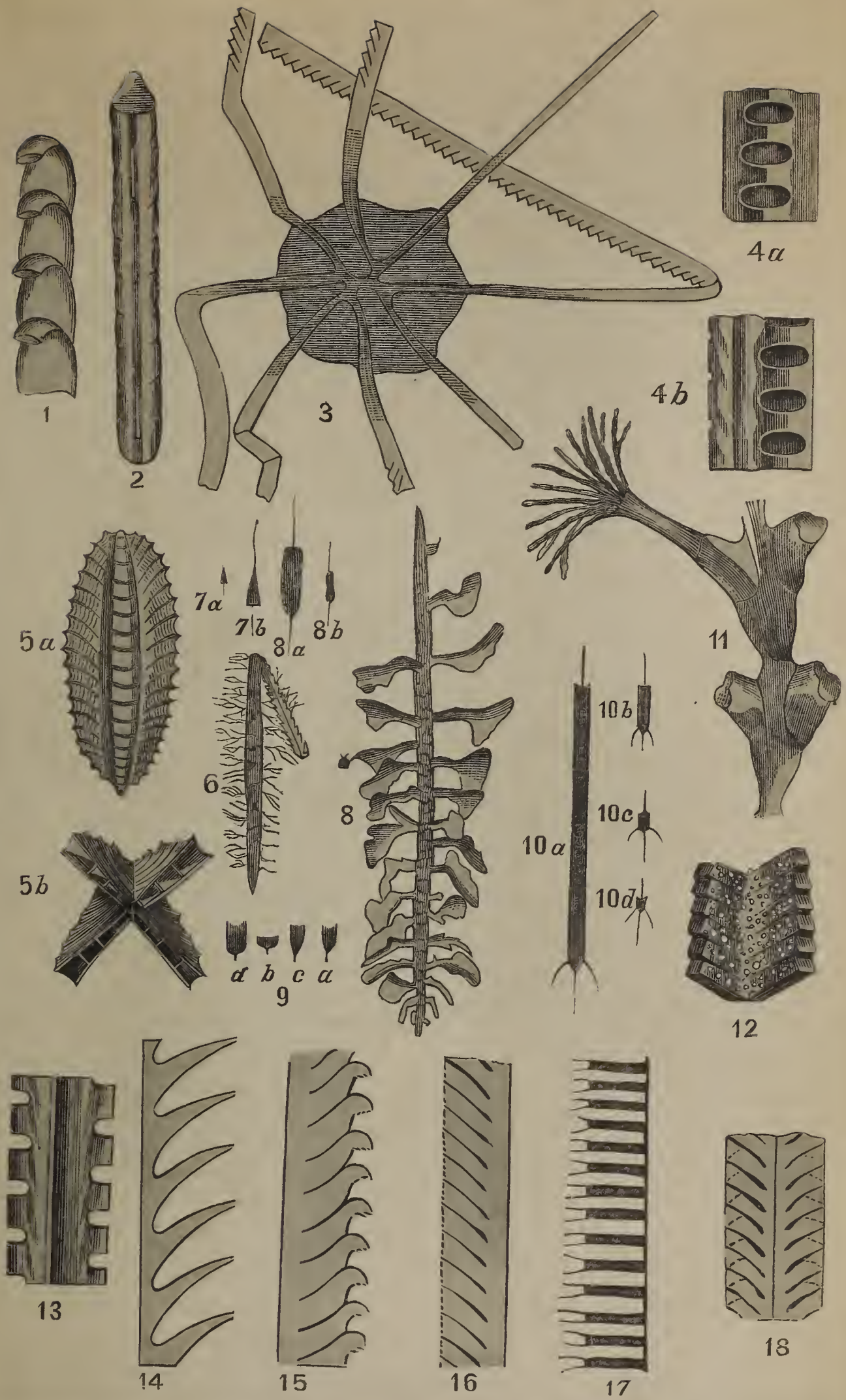
PARASITES OF THE COCKROACH.



Ophrydium versatile.

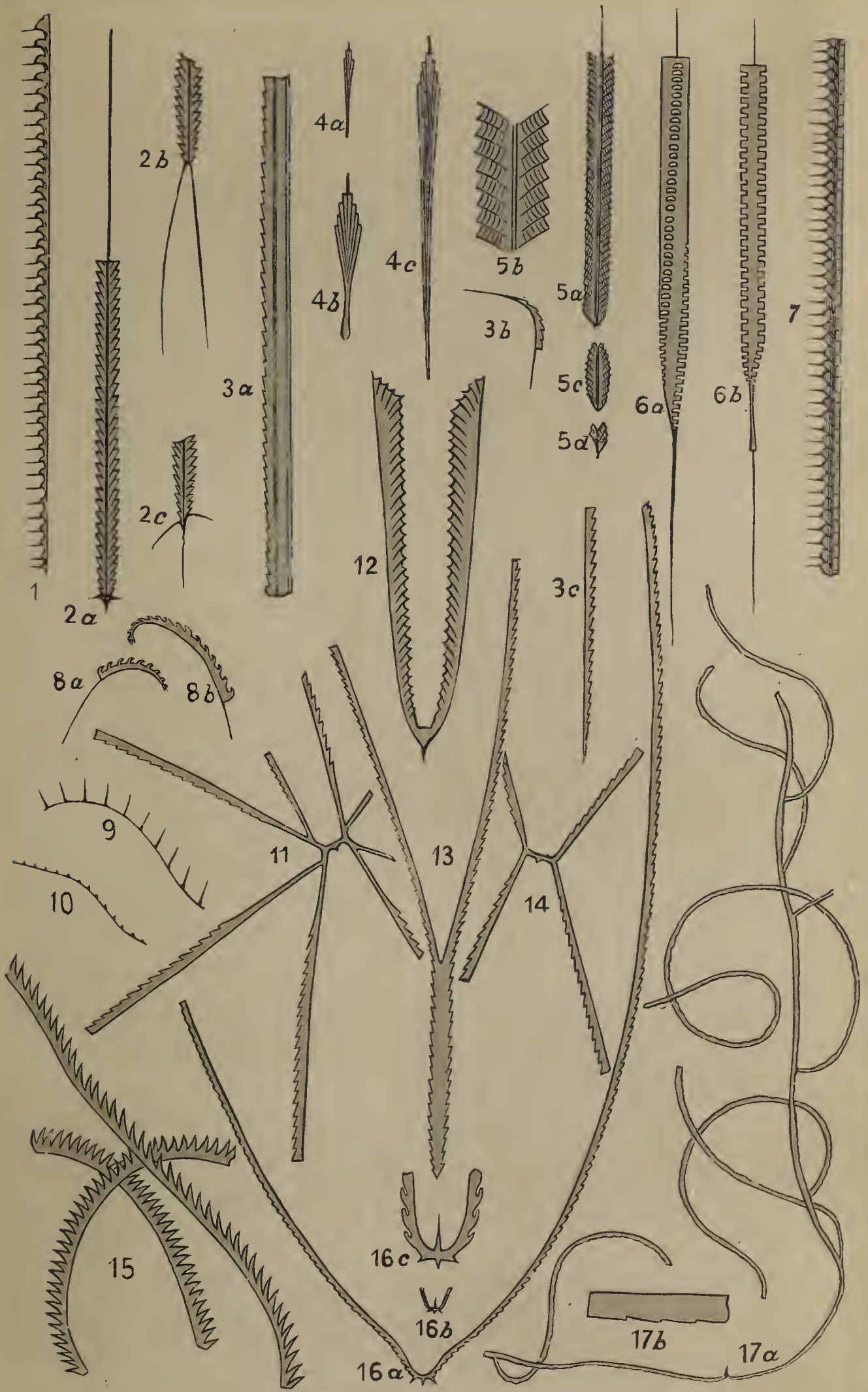


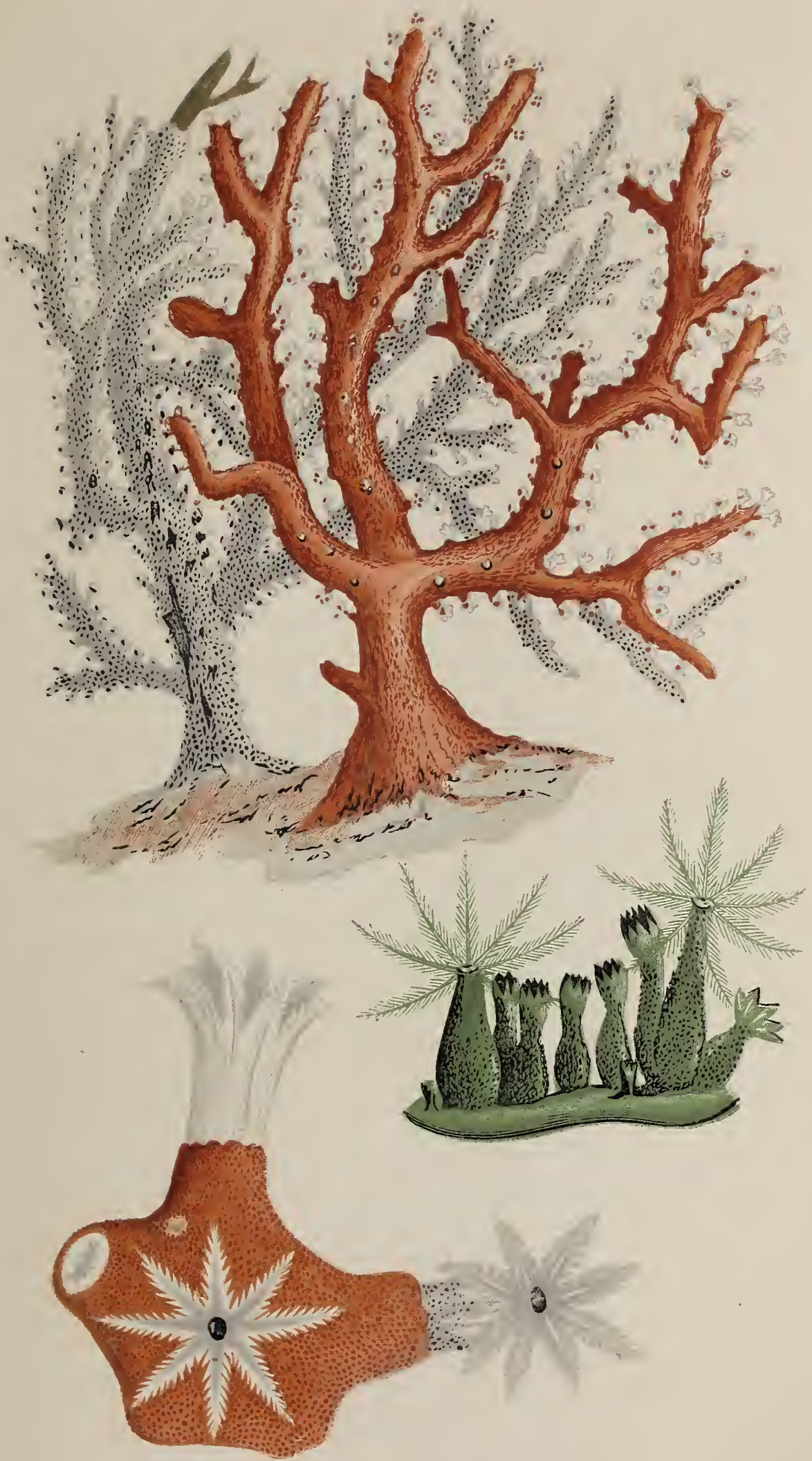
Eozoön Canadense.



STRUCTURE OF GRAPTOLITES.



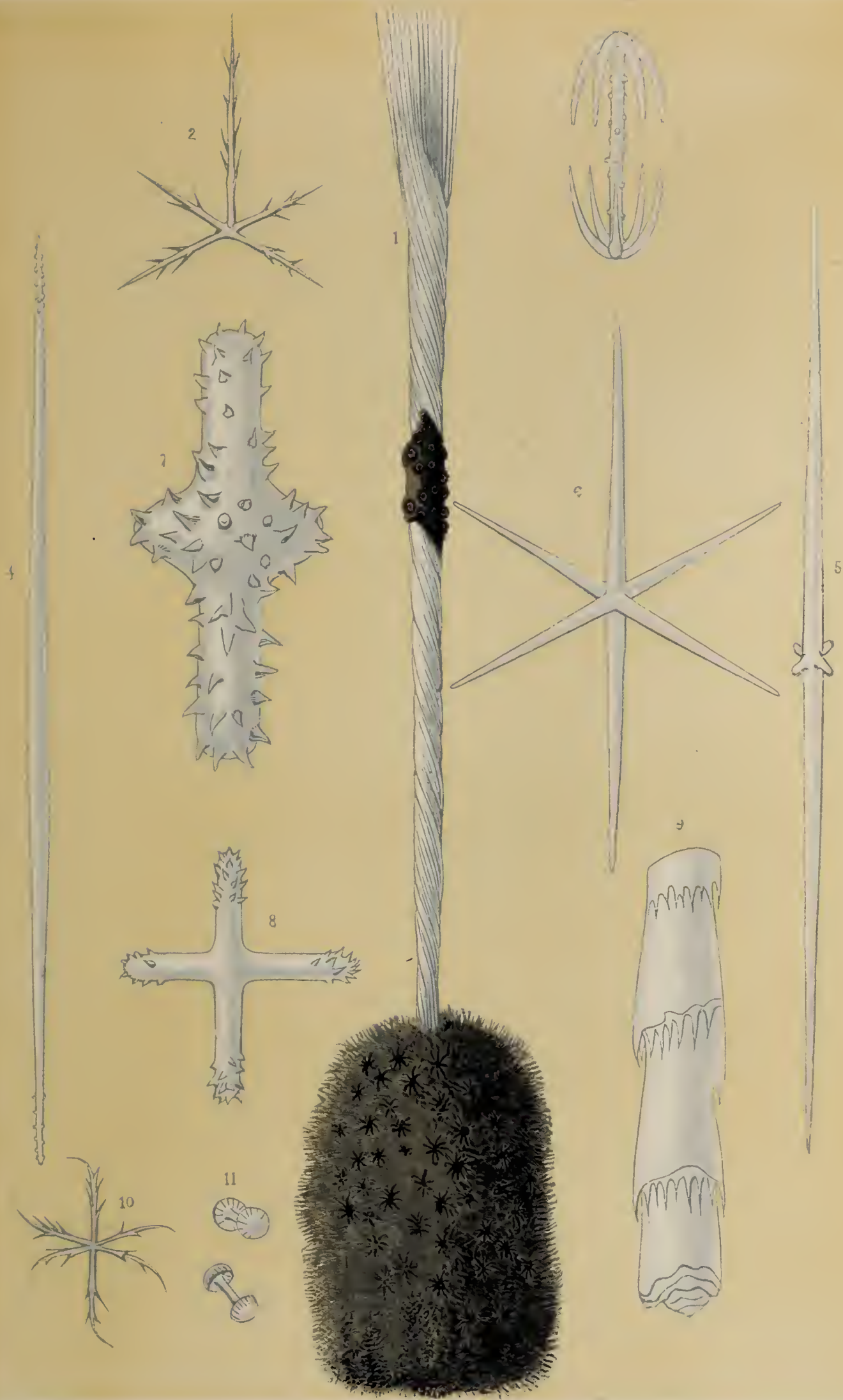




ALCYONARIA.



SPONGE
Euplectella speciosa



HYALONEMA SIEBOLDI.

Fig. 1, One-third natural size.

Figs. 5, 10, 11. magnified 200-300 diameters.

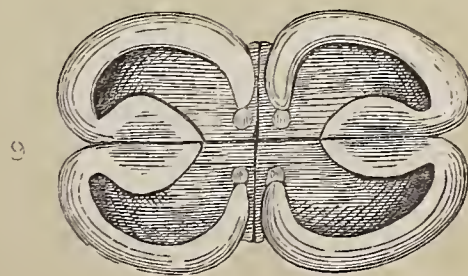
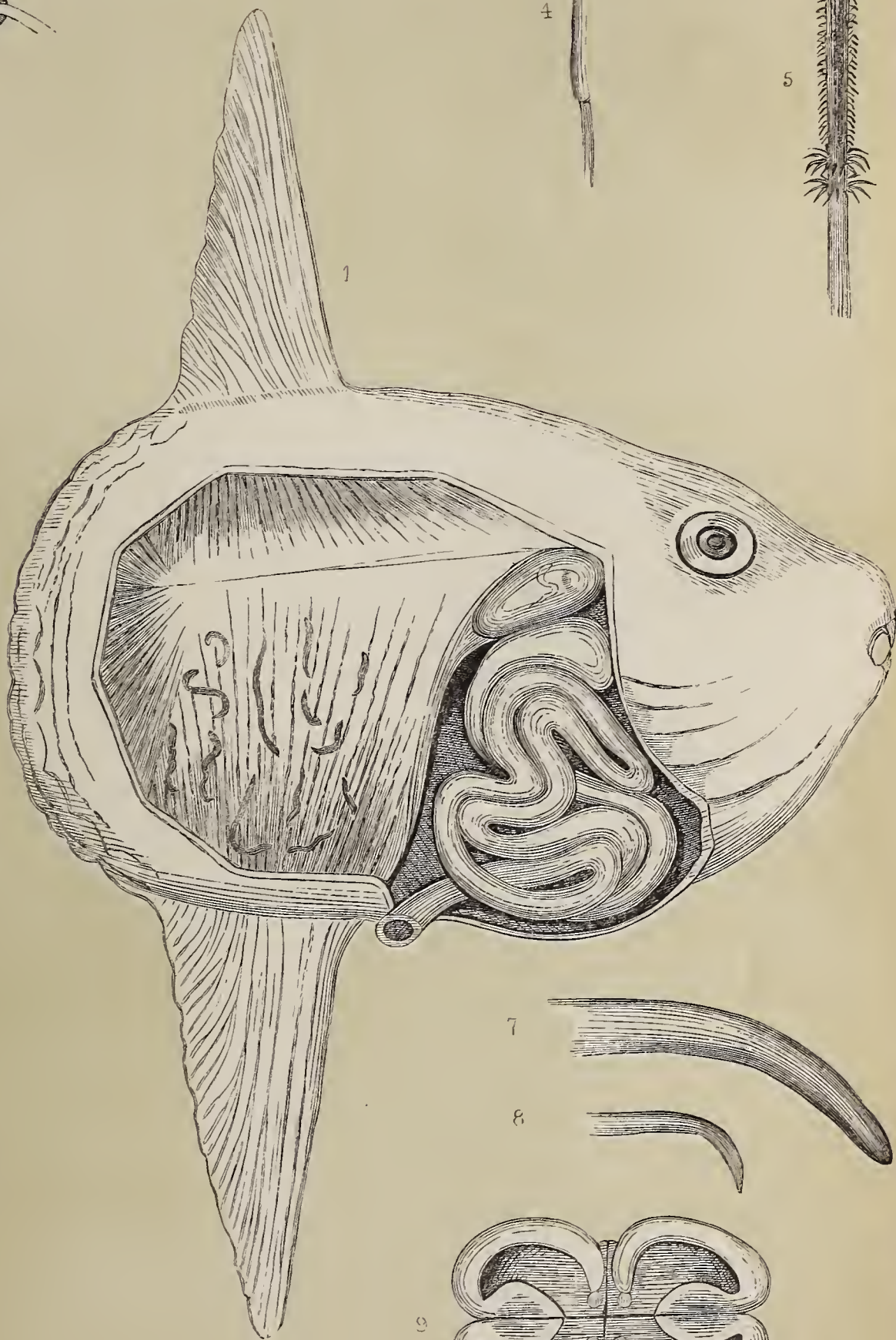
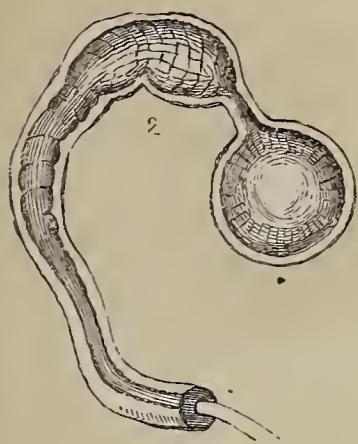
Figs. 2, 3, 4, 8. about 150 diameters.

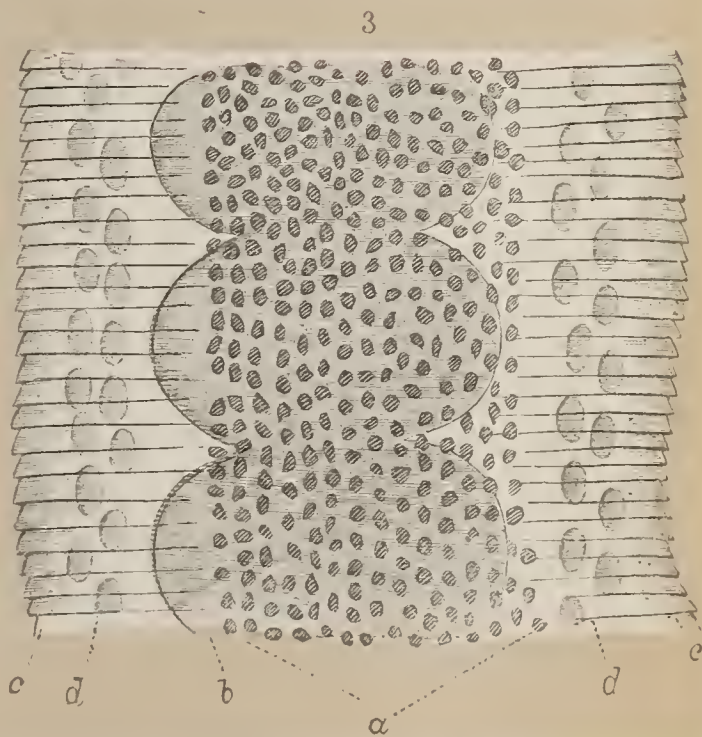
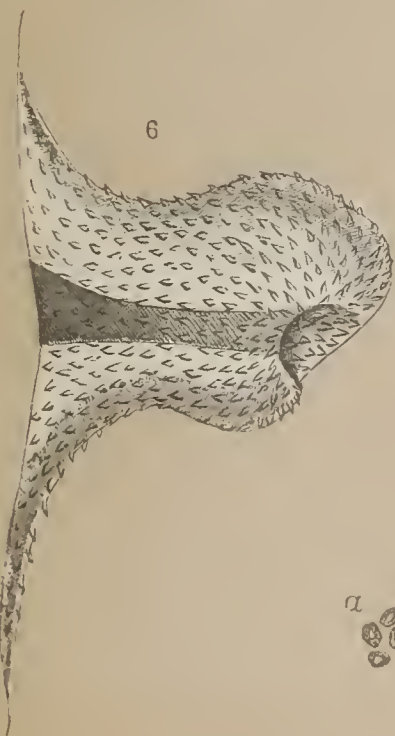
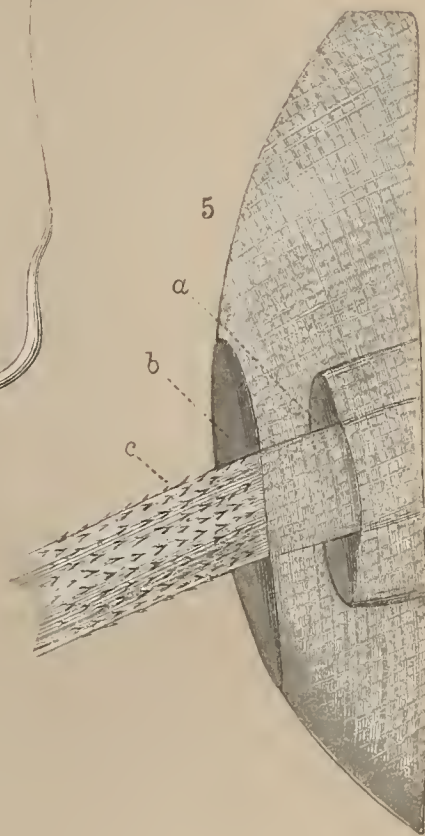
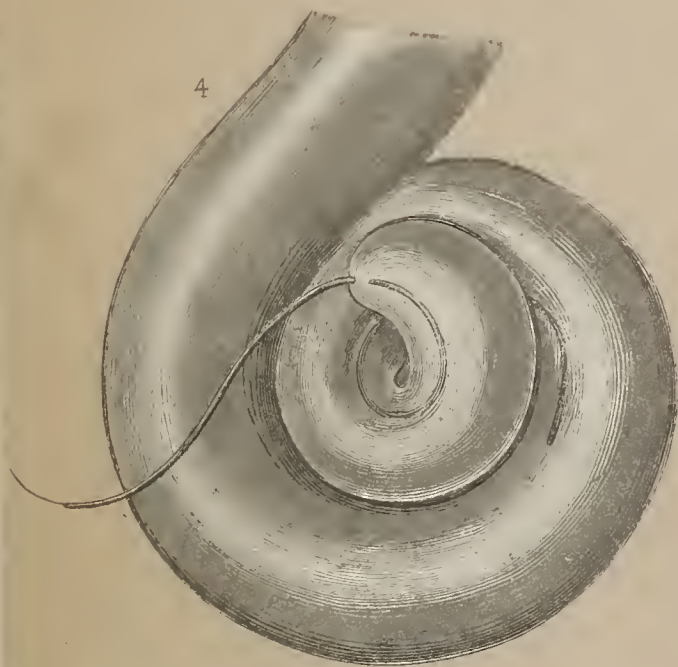
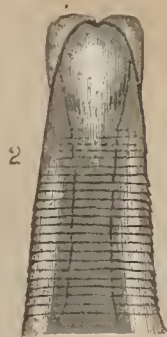
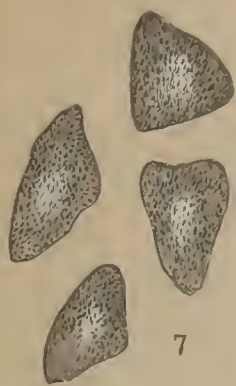
Figs. 6, 7, 9. about 75 diameters.

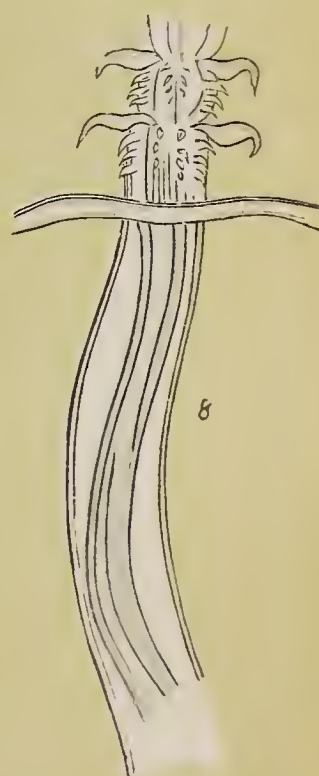
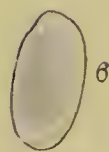
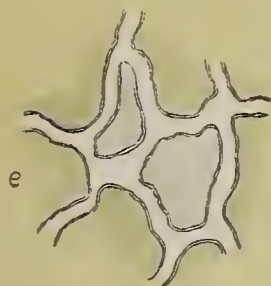
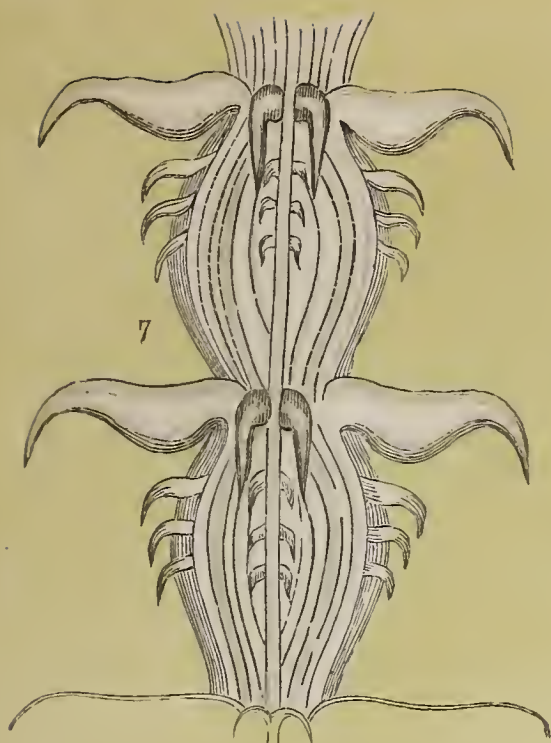


FRESH-WATER PLANARIÆ.

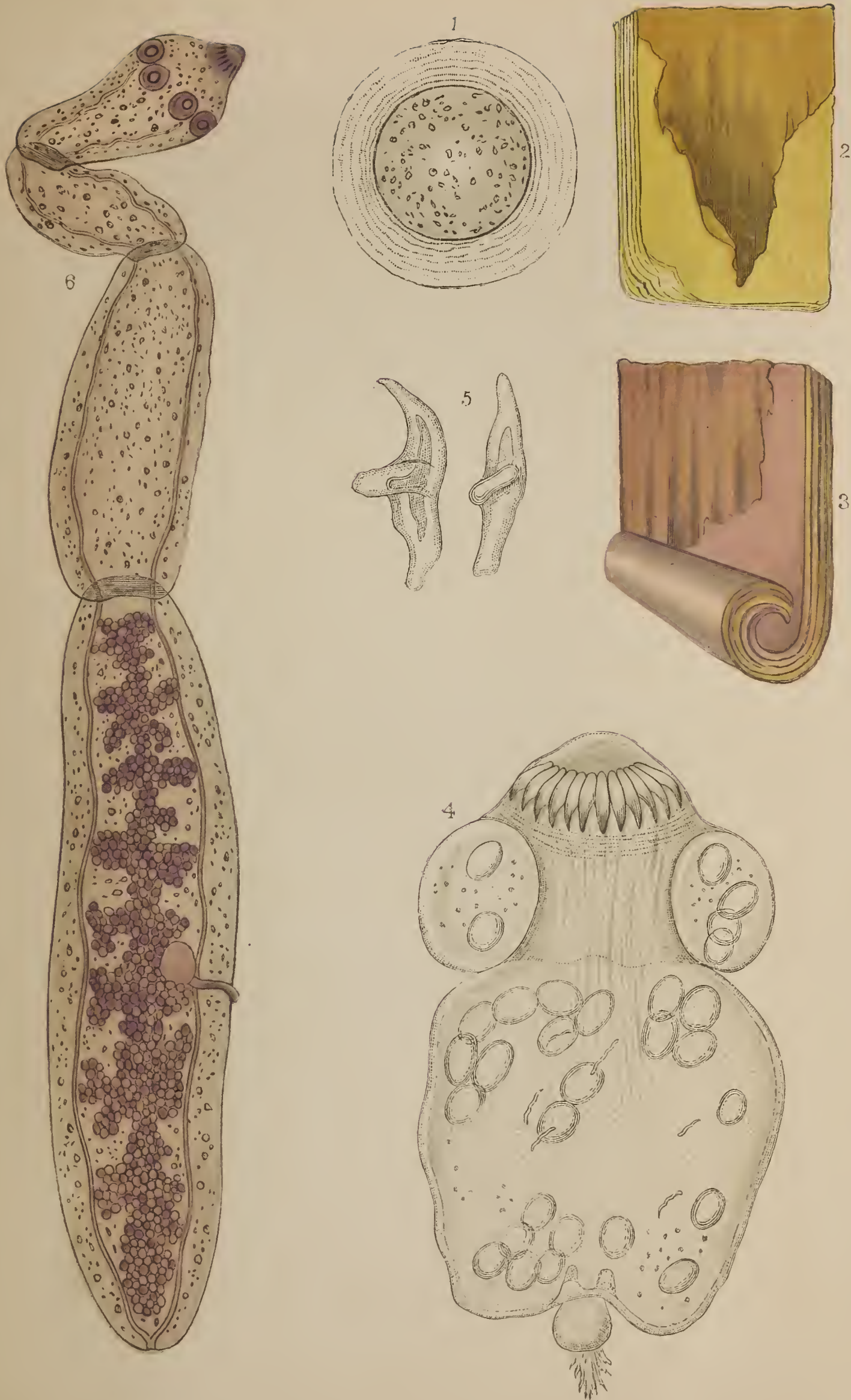




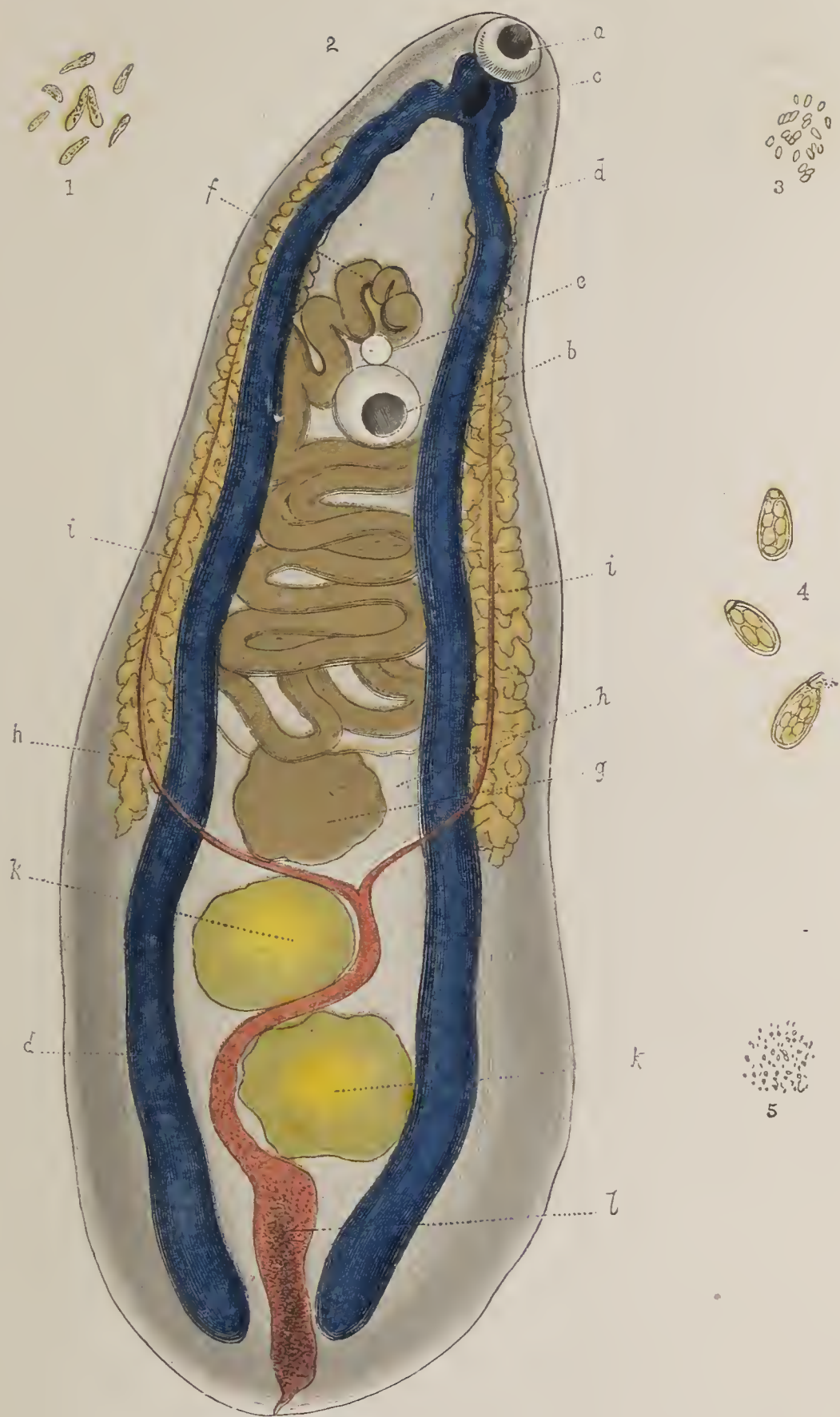






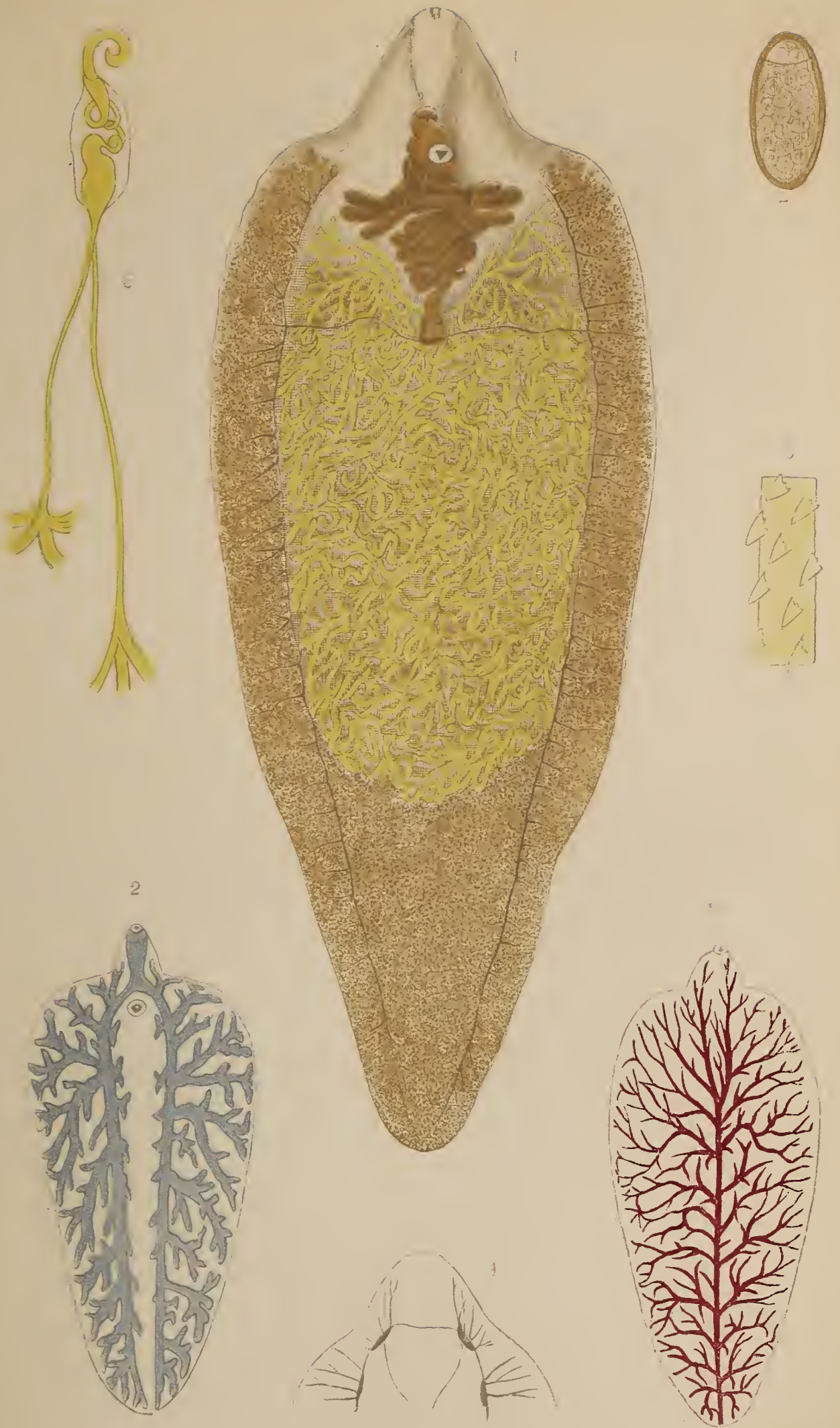


Taenia echinococcus.



T. S. Cobbold, del.

Distoma conjunctum.



Ficus hepatica



1. Disk of *Ophicoma bellis* (magnified.)
 2. Part of ray of *Luidia fragilissima* (magnified.)



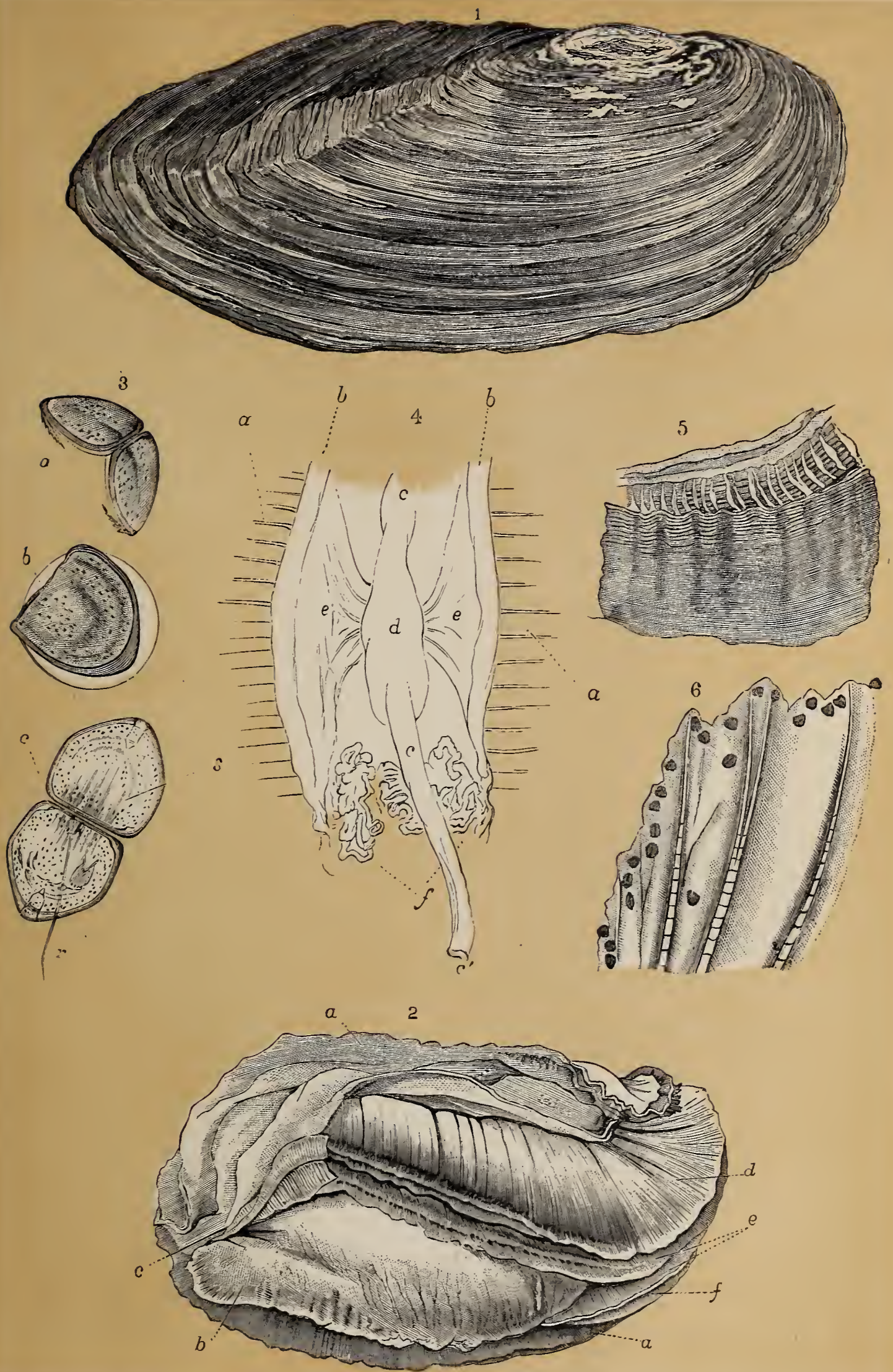
Pentacrinus Caput-Medusæ. Mill. · One-third natural size.
St. Lucia. West Indies.

Drawn by Mr. J. Dinkel from a specimen in the British Museum.



H. L. ad nat. delt.

Digestive System of the Great Slug.



THE SWAN MUSSEL, (*Anodonta cygnea*.)

Fig. 1. Shell of *Anodonta cygnea*.

Fig. 2. Animal of ditto. a, Mantle. a', ditto, folded back. b, Foot. c, Labral palpi, inner surface. d, Outer gill distended with embryos. e, Inner gills. f, Outer gill.

Fig. 3. Embryos. a, Shewing open valves and serrated hooks. b, Closed valves surrounded by chorion. c, Open valves, shewing adductor muscles (s) and origin of byssus filament (r).

Fig. 4. Shewing heart, etc. a, Gills. b, Branchial arteries. cc, Rectum passing through ventricle of heart (d). ee, Auricles. c', Anus. f, Portion of organ of Bojanus.

Fig. 5. Portion of outer gill, shewing septa or divisions for reception of eggs, etc.

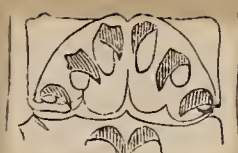
Fig. 6. Portion of fin of fish, with parasitic embryos.



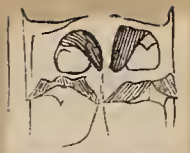
Patella vulgata.



P. pellucida.



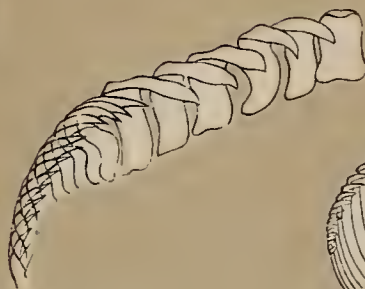
Acmea virginea.



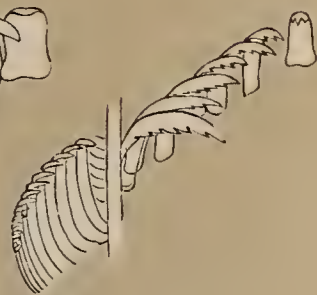
A. testudinalis.



Trochus ziziphinus.



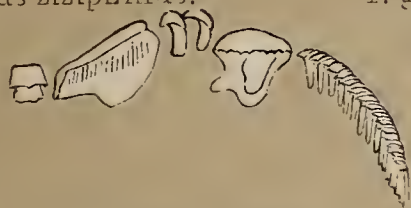
T. granulatus.



T. helacinus.



T. cinerarius.



Neritina fluviatilis.



Cyclostoma elegans.



Paludina listeri.



Bithynia tentaculata.



Litorina litorea.



Litorina littoralis.



Lamellaria tentaculata.



Purpura lapillus.



Nassa incrassata.



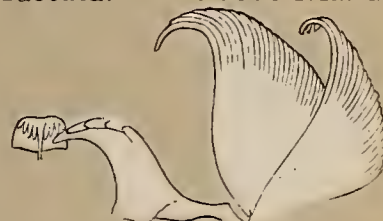
Fusus islandicus.



Natica monilifera.



Cypraea Europaea.



Ovula patula.



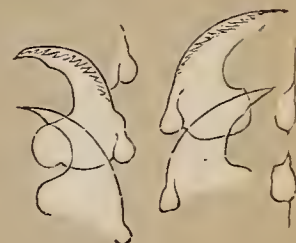
Eolis papillosa.



E. (coronata?).



Doris aspera.



Goniodoris nodosa.



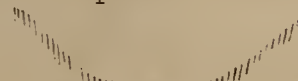
Physa fontinalis.



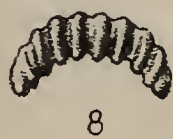
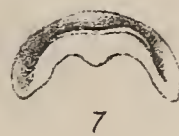
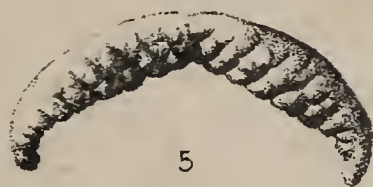
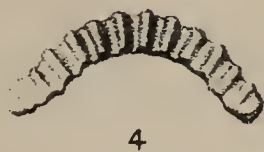
Arion empiricorum.



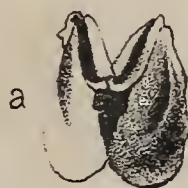
Zonites cellarius.



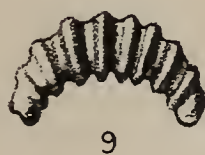
Planorbis corneus.



10



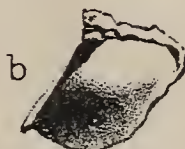
11



9

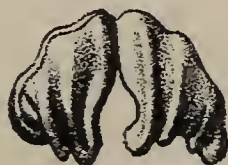


b

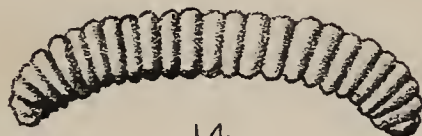


b

12



13



14



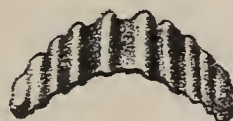
15



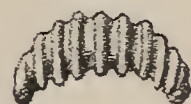
16



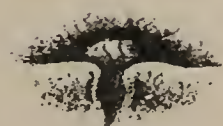
17



18



19



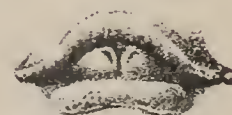
20



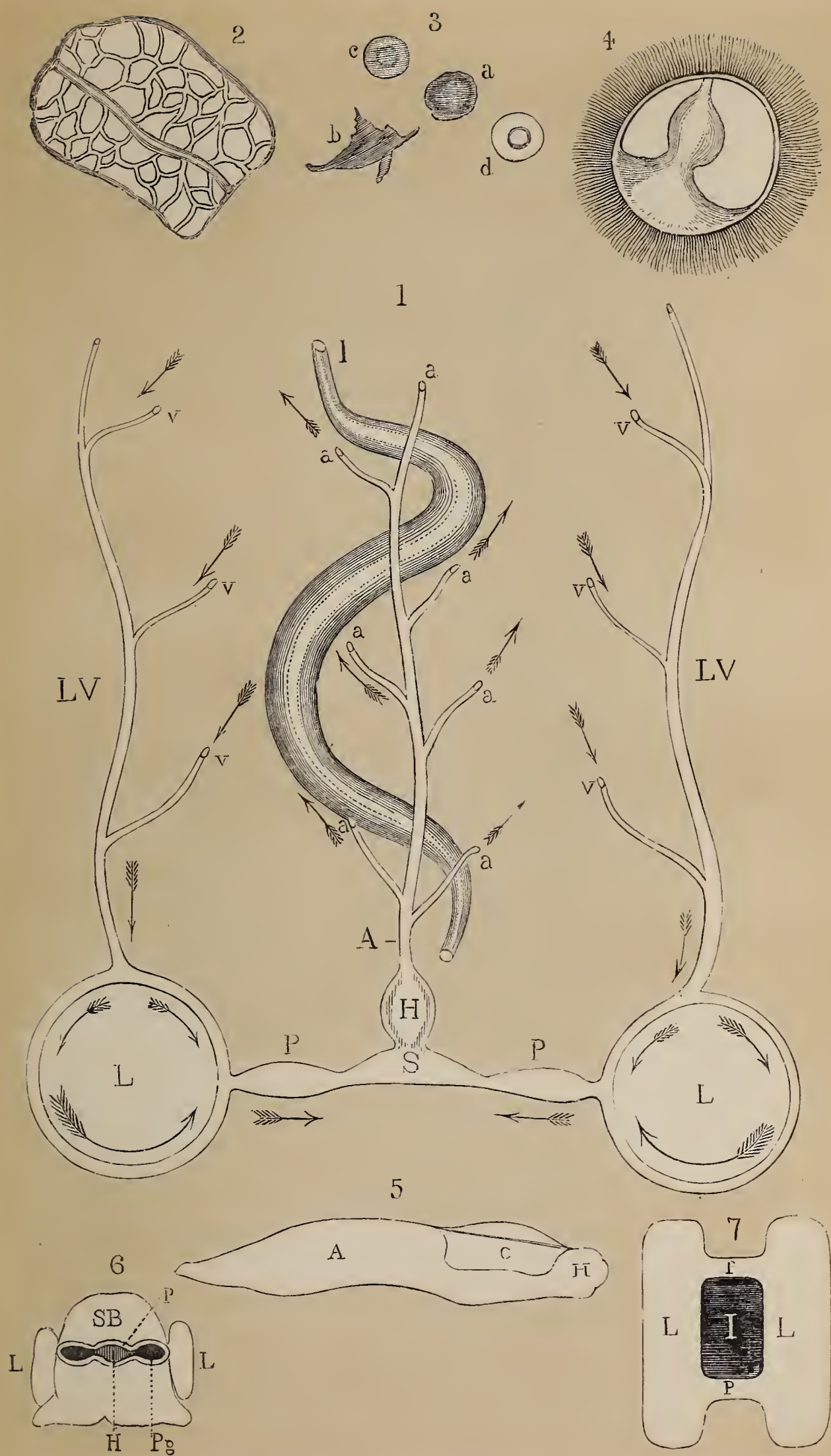
21



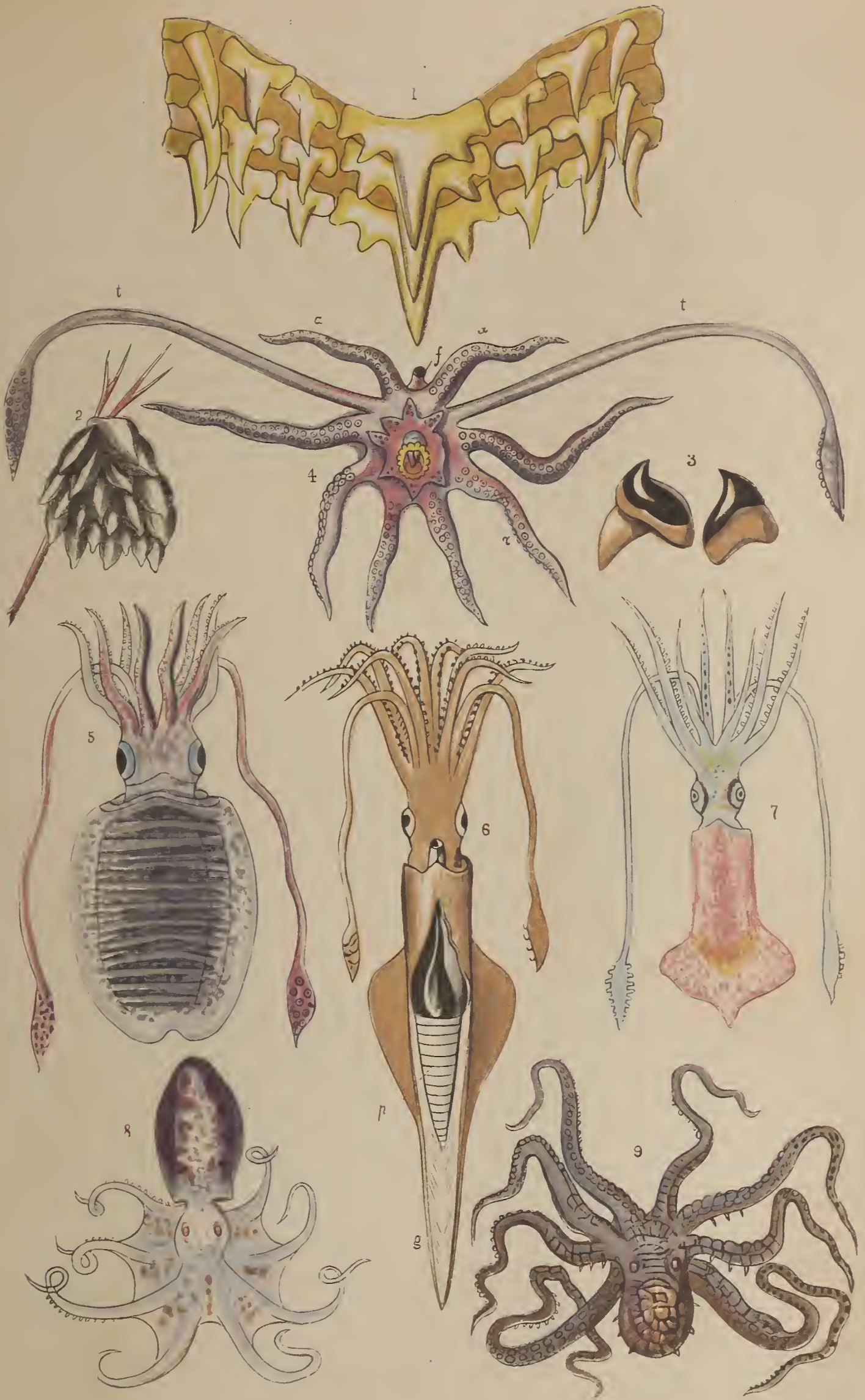
22



23



Circulation and Respiration of Slug.



DIBRANCHIATE CEPHALOPODA.





AUGUSTUS.

A Cameo in the Blacas Collection, lately added to the British Museum.



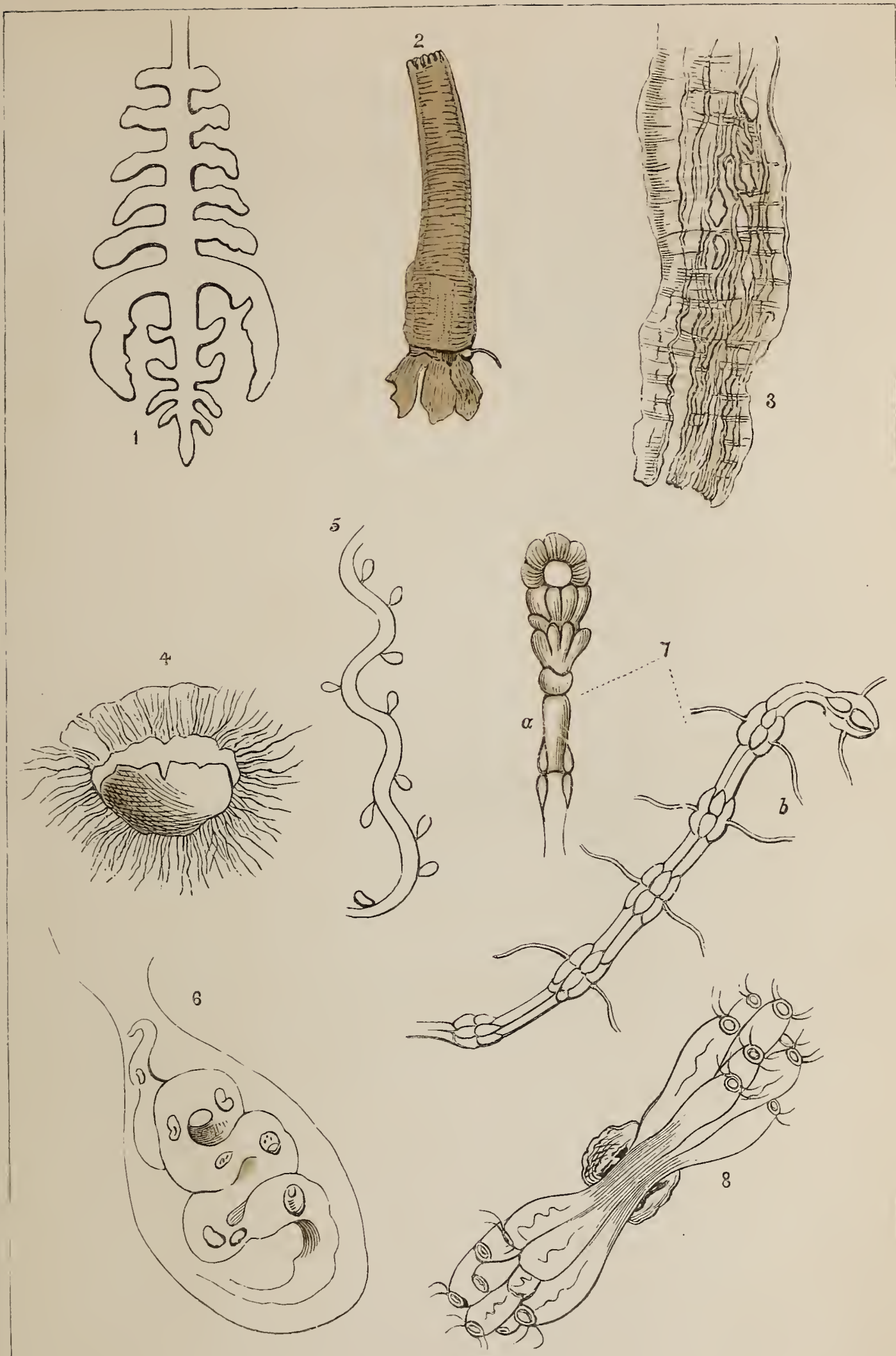
RECENT SHELL-FORMS.

1. *Cleodora pyramidalis*.
2. *Bulimus regina*.
3. *Tropidophora carinata*.
4. *Helix (Anastoma) globulus*.
5. Ditto, under side.
6. *Patella longicosta*.
7. *Murex adustus*.

8. *Dentalium elephantinum*.
9. *Vermetus tumbricalis*.
10. *Siliquaria anguina*.
11. *Waldheimia australis*.
12. *Isocardia cor*.
13. *Aspergillum vaginiferum*.
14. *Canton squamosus*.



SETÆ OR BRISTLES OF ANNELIDA.



SNAIL LEECHES.

Glossiphoniidae.

- 1, Digestive apparatus of a Glossiphon.
- 2, Tubular proboscis, mag. 20 diameters.
- 3, Portion of ditto, highly magnified.
- 4, Cup-shaped plate of *G. bioculata*.

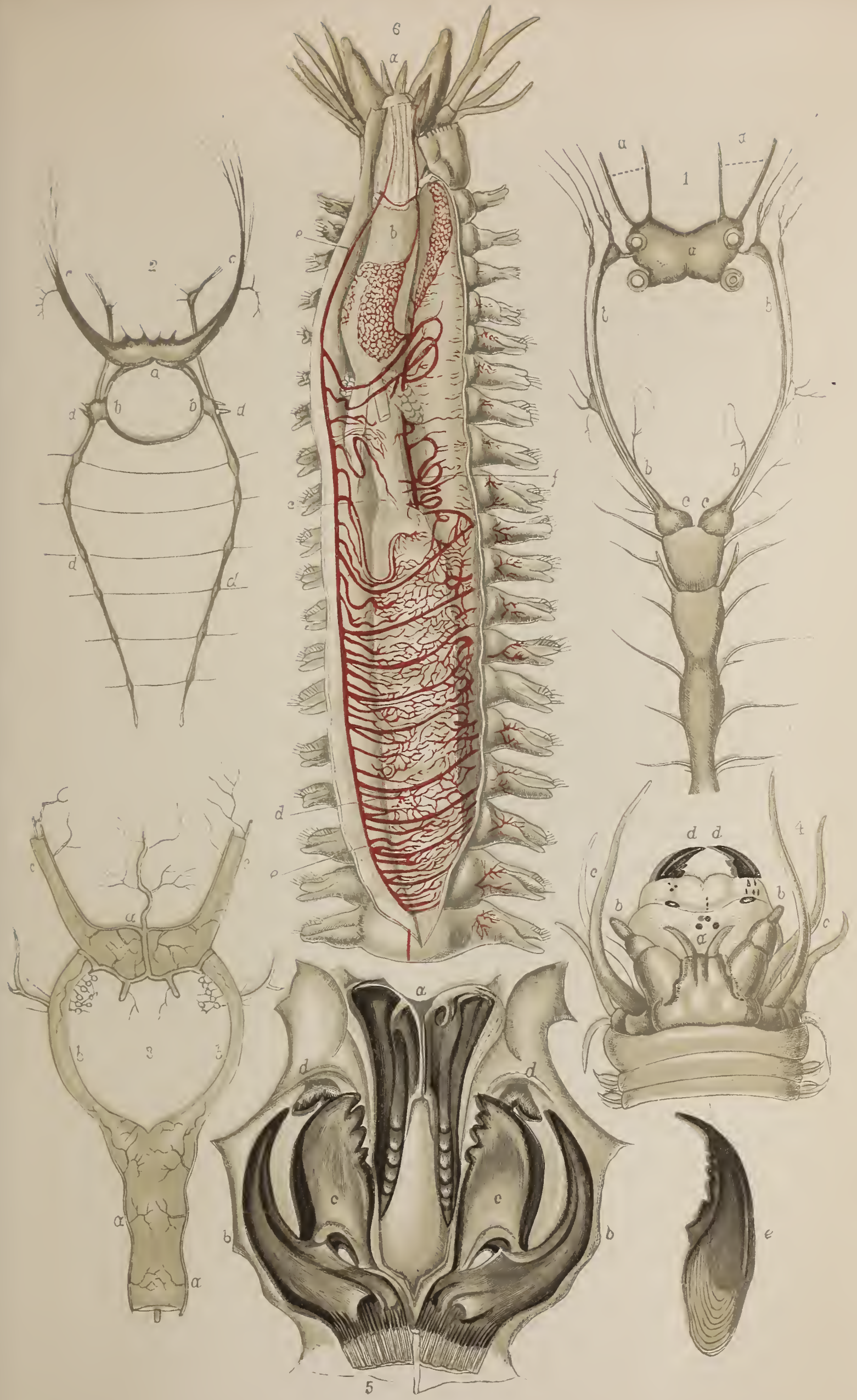
- 5-6, Ovary.
- 7, Nervous system. *a*, Cephalic ganglia.
b, Portion from body.
- 8, Parasites on cervical plate of *G. bioculata*.



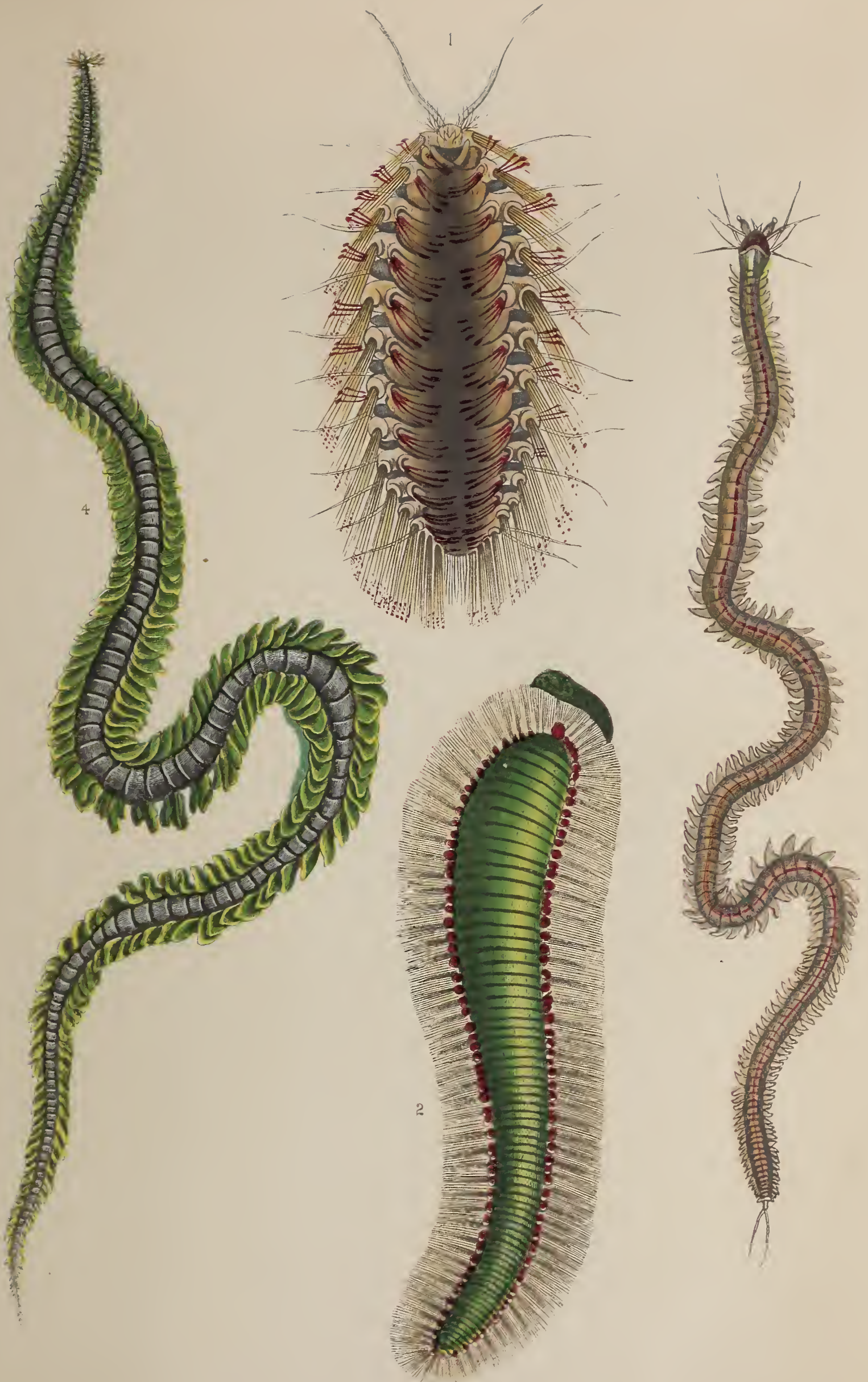
SNAIL LEECHES.
Glossiphoniidæ.

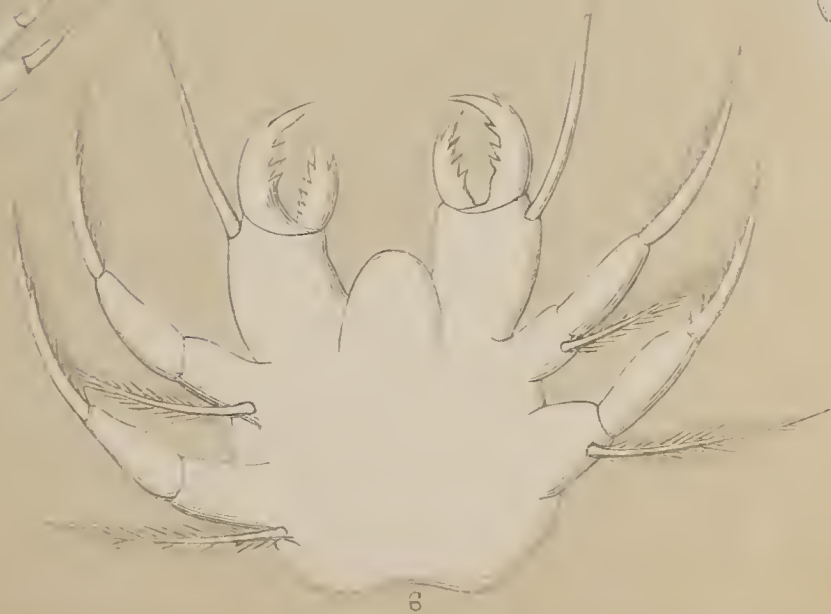
1-4, *Glossiphonia complanata*.
5-6, *G. hyalina*.

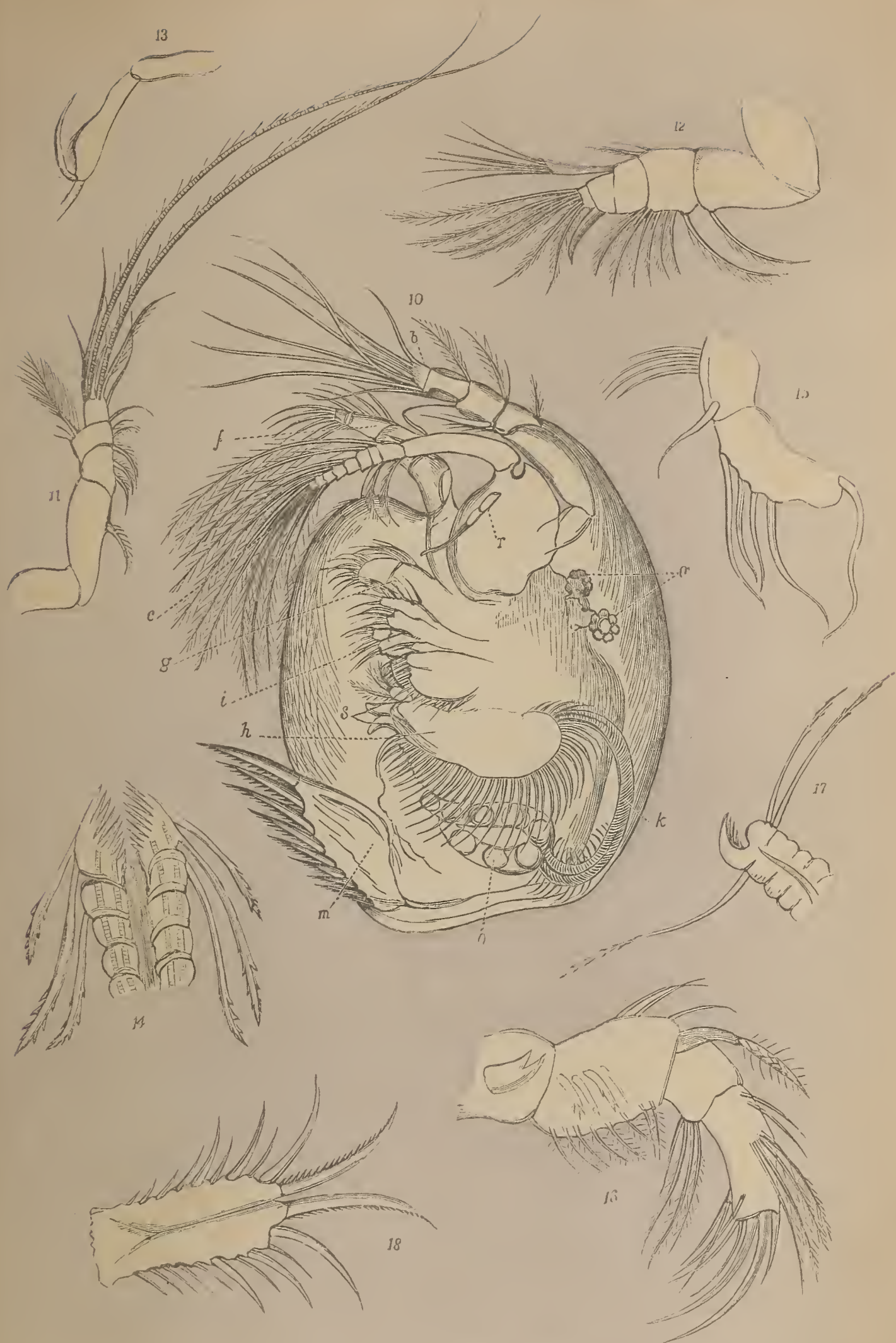
7-9, *Glossiphonia bioculata*.
10, *G. marginata*. All magnified.

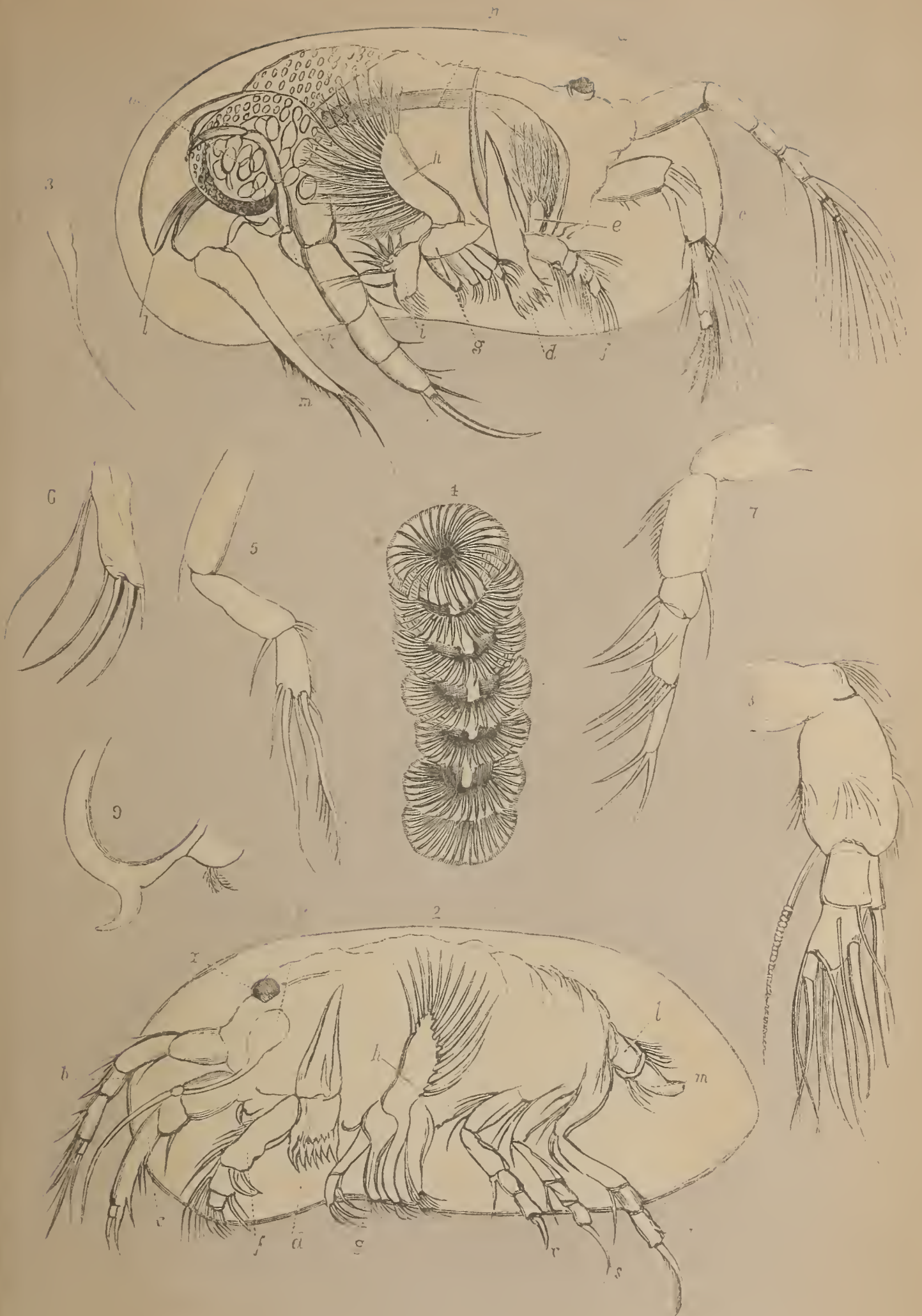


NERVOUS AND CIRCULATORY SYSTEMS OF ANNELIDA.









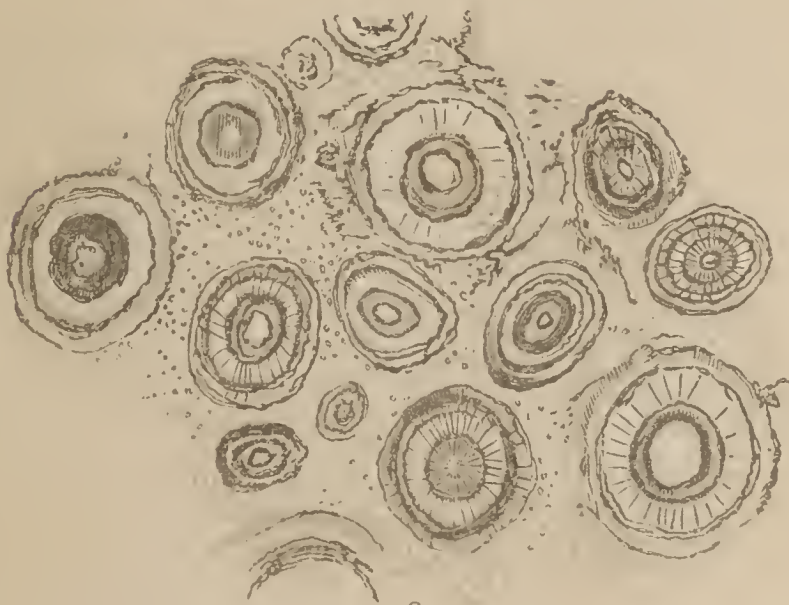
Anatomy of Cypridæ and Cythoidæ.



1



2



3

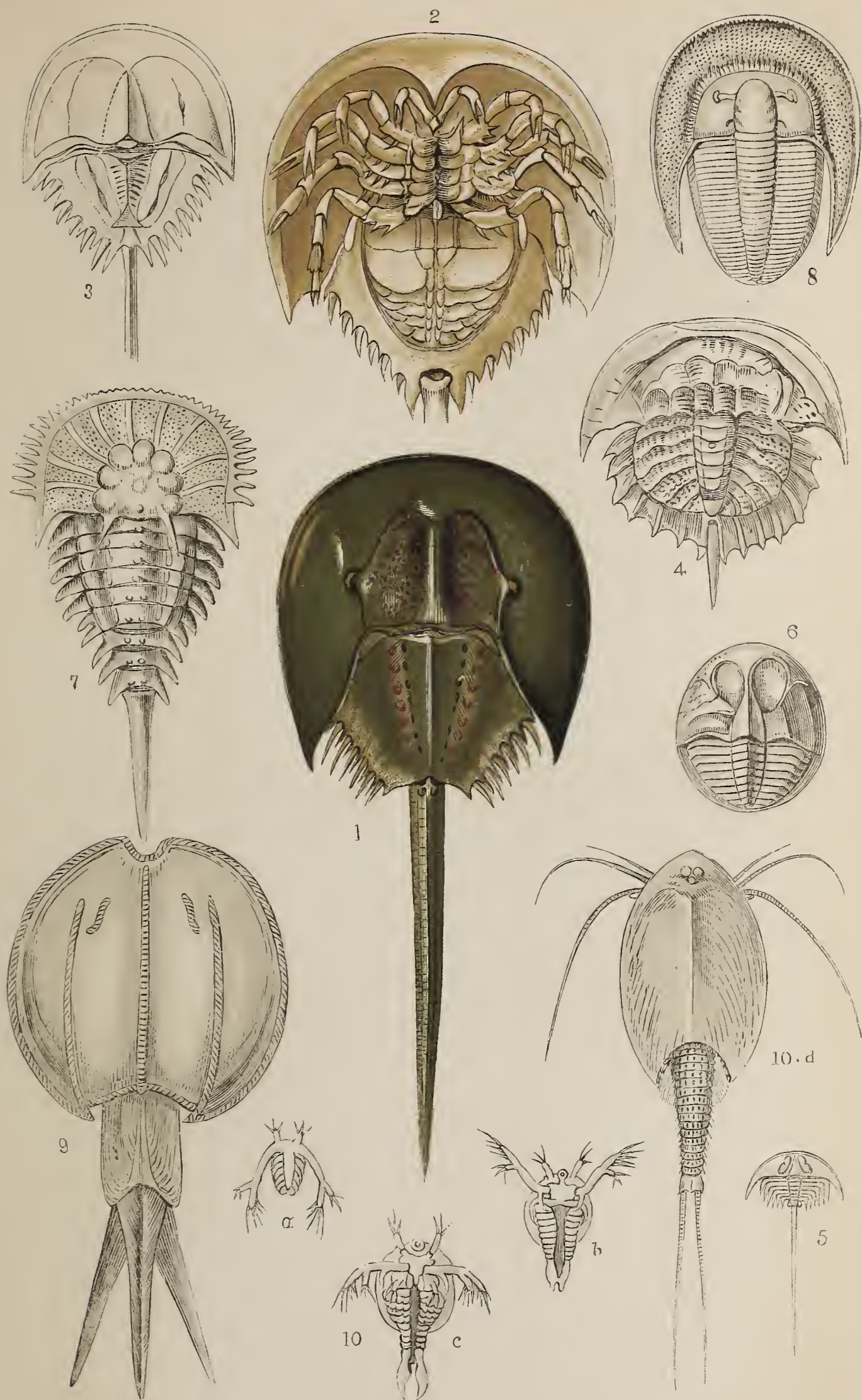
1. Tail of Opossum Shamp. 3. Section of Crab Shell.
2. Claw of Violet Crab.



Pycnogons (Sea Spiders.)



SLIMONIA (Pterygotus) ACUMINATA, Salter. Sp.
Upper Ludlow Rock. Lesmahagow. $\frac{1}{2}$ natural size. — From a specimen in the British Museum.

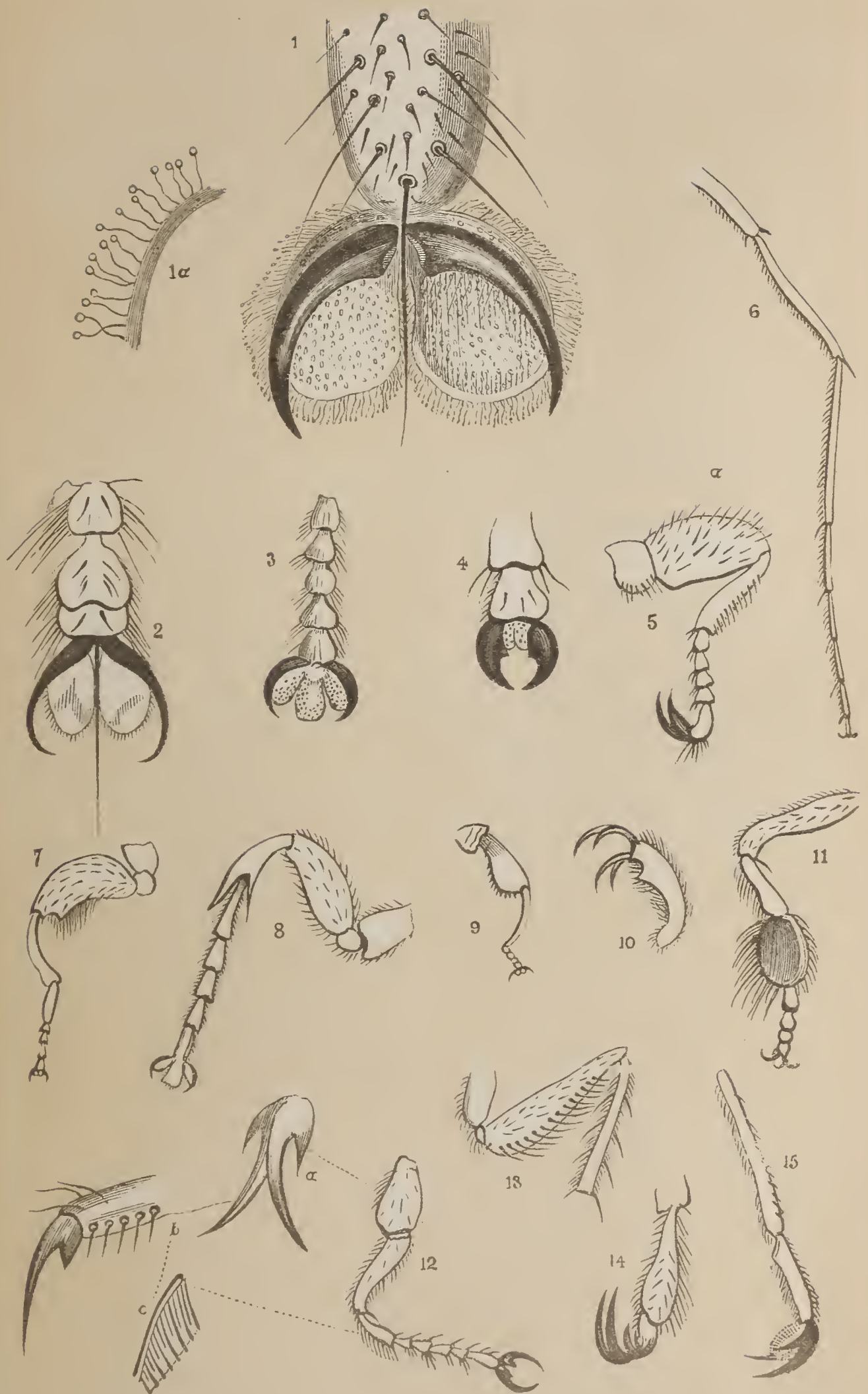


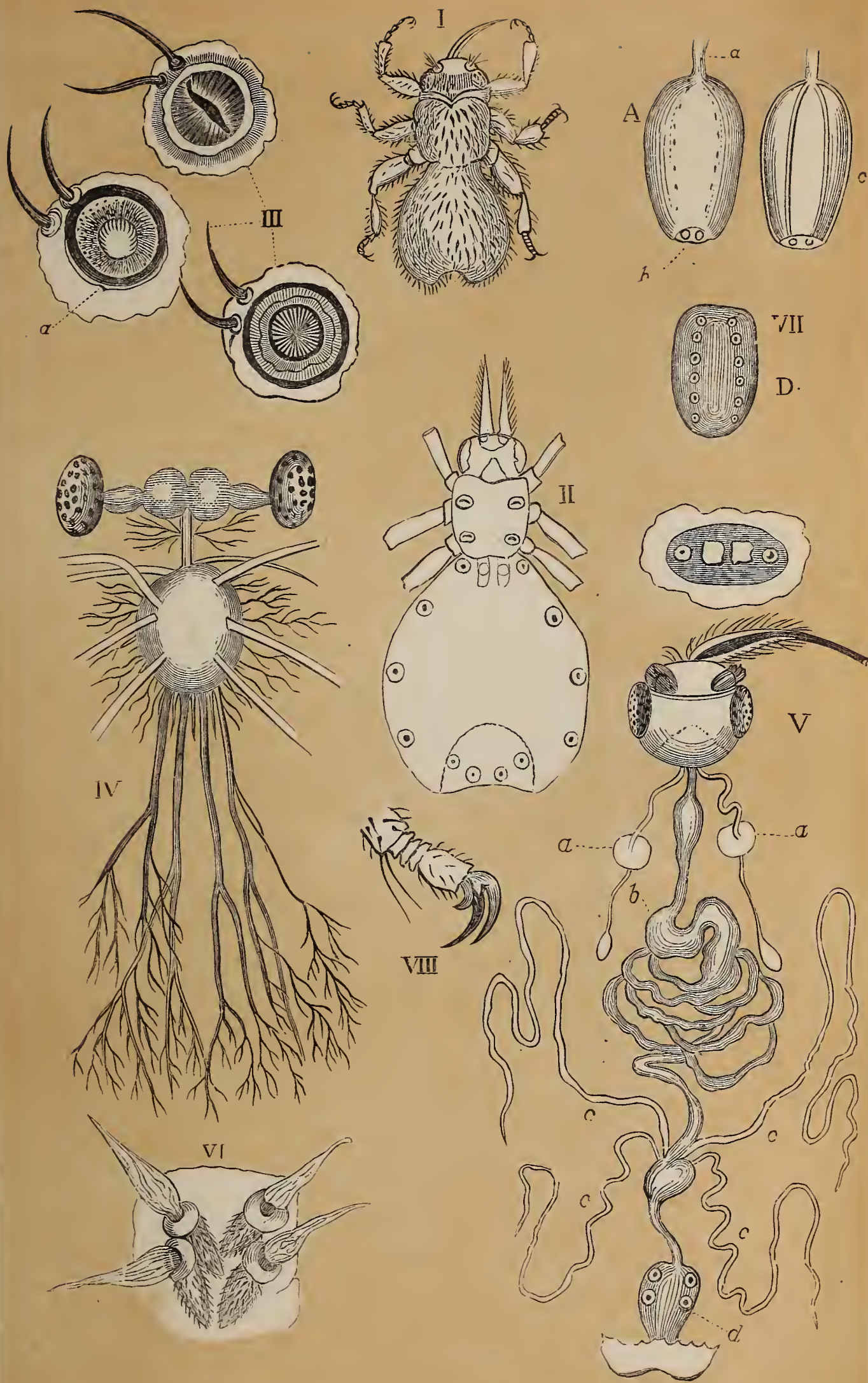
SHIELD-BEARING CRUSTACEA.
(Recent and Fossil.)



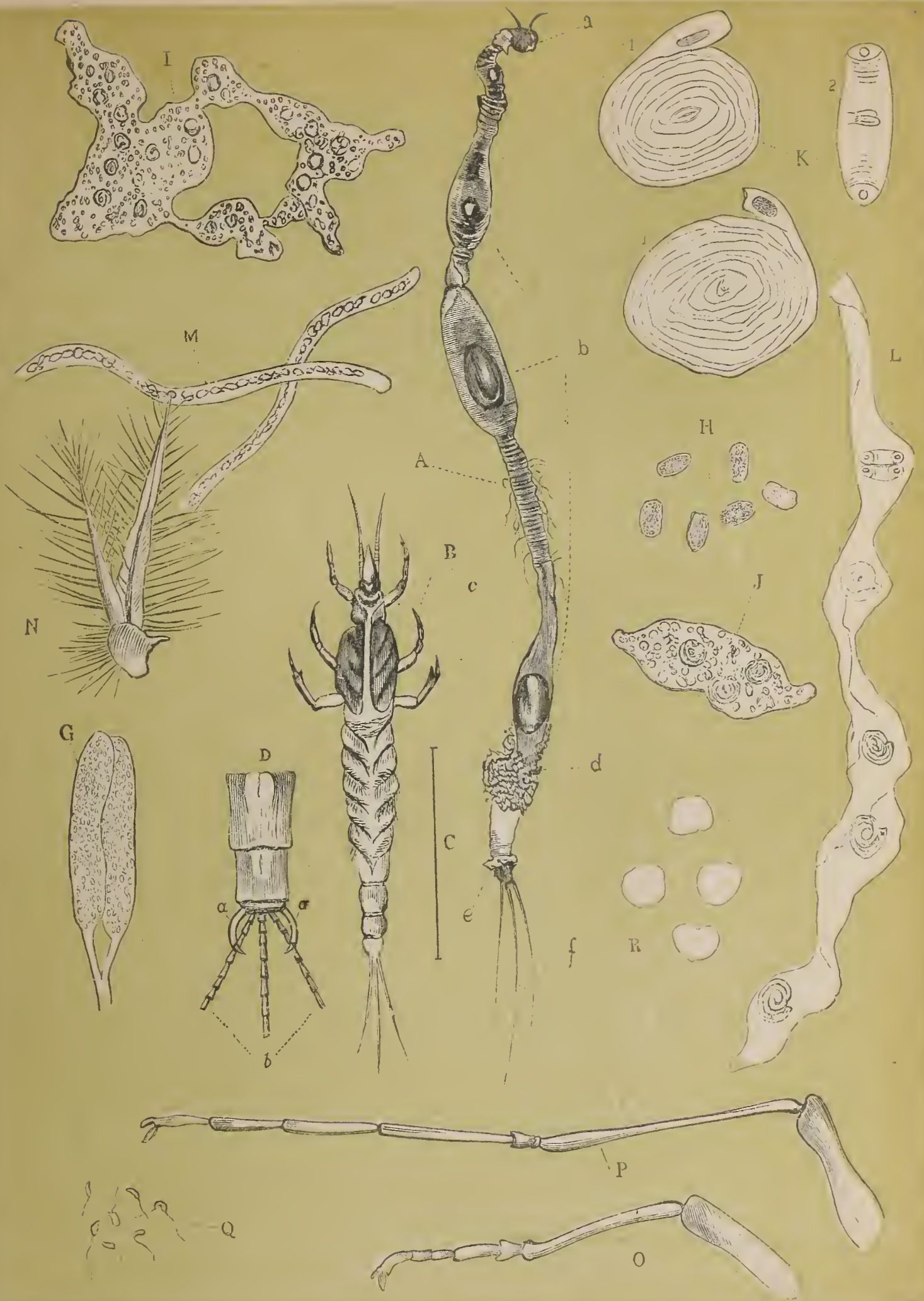


British Lacustrine Entomostraca.





Melophagus, or Sheep Tick.



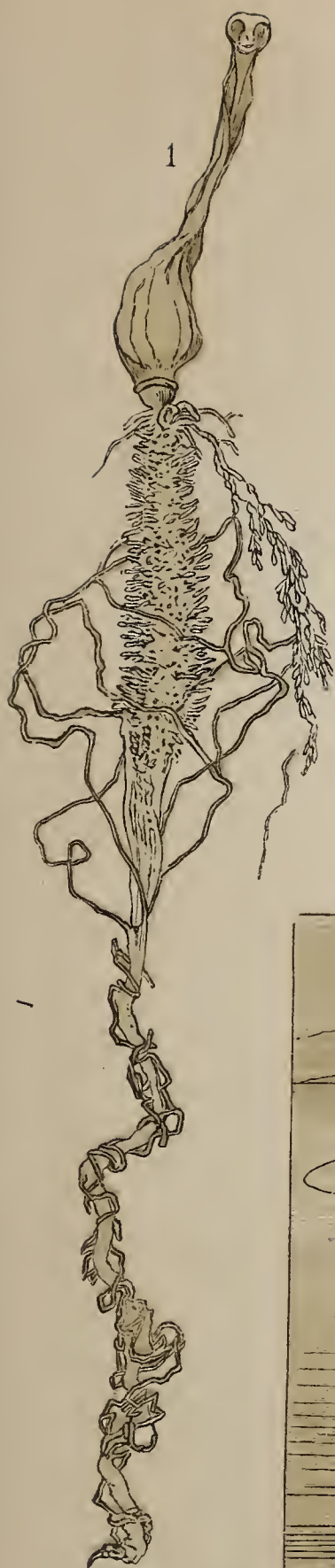
THE MAY FLY.—GREEN AND GREY DRAKE.

(*Ephemera vulgata*.)

A.—Digestive apparatus of *Ephemera* (magnified.) *a*, Head. *b*, Portions of digestive apparatus, inflated with air-bubbles. *c*, Stomach, with rudimentary biliary tubes. *d*, Entangled mass of secretory organs generally called renal. *e*, Anus. *f*, Caudal setæ. *G*, Ovaries, (magnified.) *H*, Ova, (mag. 20 diam.) *I*, Portion of biliary vessel in immature (sub-imago) insect, shewing curiously shaped bodies marked with concentric lines, (magnified.) *J*, Small portion of ditto more highly magnified. *K*, The curious organs (1, front view. 2, side view) resembling forms of Naviculæ, mag. 400. *L*, Membranous biliary filament in perfect insect (imago) containing the above-named bodies, mag. 200. *M*, Single renal vessels. *N*, External respiratory organ of nymph. *O*, Front leg of female imago. *P*, ditto of male. *Q*, Spermatozoa. *R*, Blood corpuscles, highly magnified. *B*.—Nympha of *Ephemera vulgata*, (magnified.) *C*.—Nat. size.

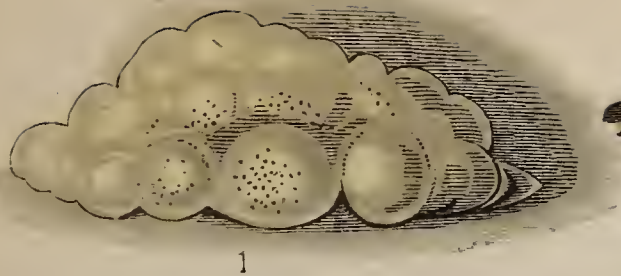
D.—Under side of last segments of male imago, shewing, *a*, clippers, and position of setaceous appendages at *b*.



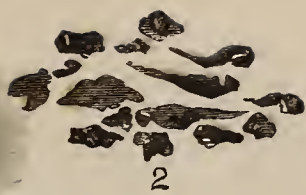


THE GREAT WATER BEETLE.

1. Digestive apparatus of *Dyticus marginalis*.
2. Spiracle of ditto, magnified.



1



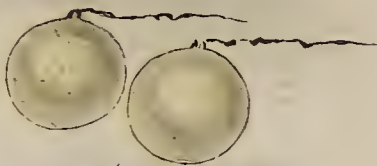
2



7



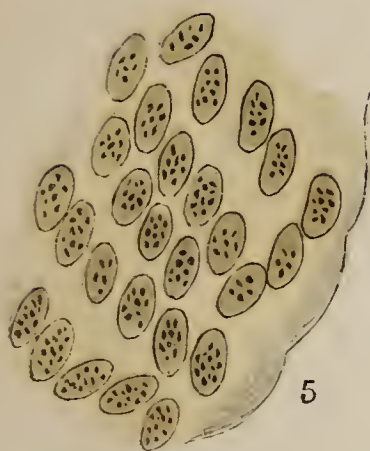
3



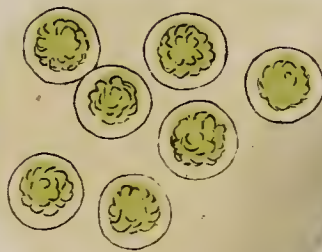
4



8



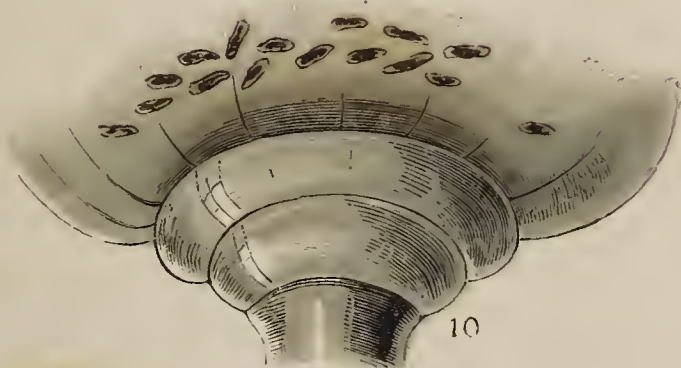
5



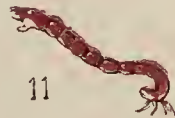
6



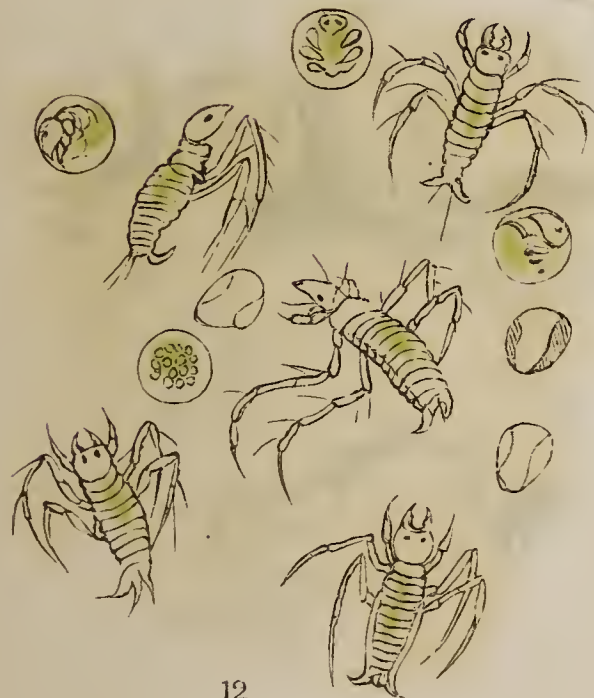
9



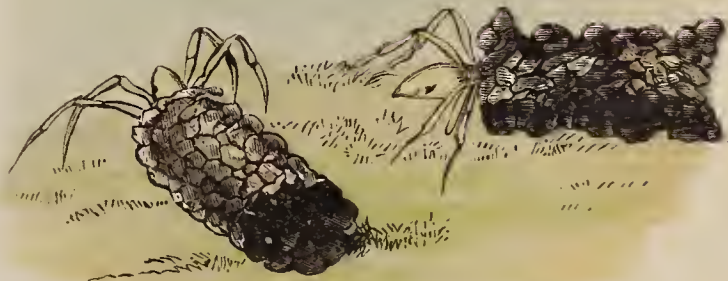
10



11

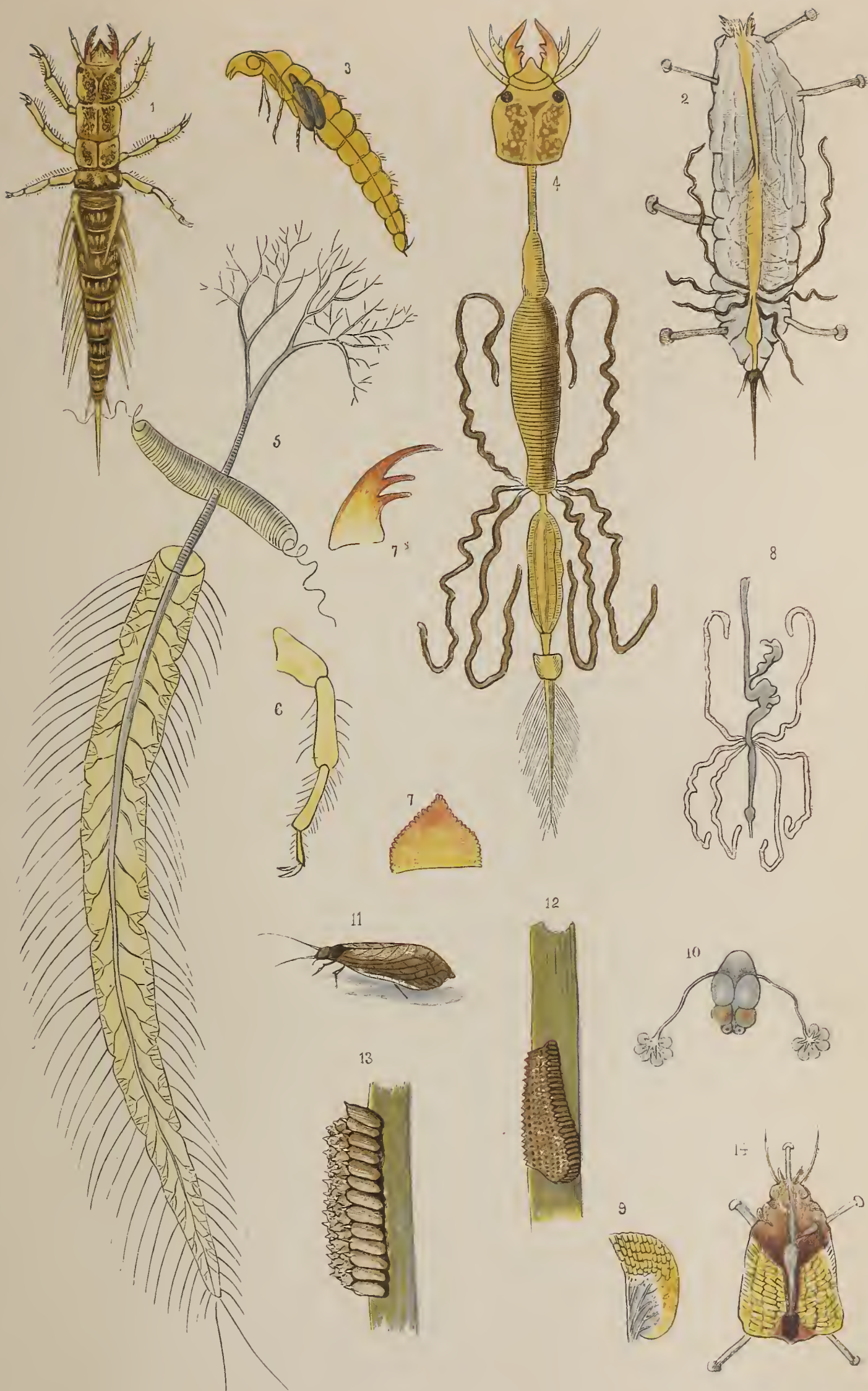


12



13

14



THE ALDER FLY, (*Sialis lutarius*.)

1. Larva of *Sialis lutarius*, mag. 2 diams.
2. Ditto, laid open.
3. Nympha of *Sialis*.
4. Digestive apparatus of larva, magnified.
5. One of the branchial filaments, mag.; shewing tracheal branchlet.
6. Leg of larva.
7. Labium of ditto. 7*. Mandible.

8. Digestive apparatus of perfect insect.
9. Ovary of.
10. Male generative organ.
11. Male insect.
12. Cluster of eggs on bit of *Sparganium*.
13. Ditto, magnified.
14. Female insect, laid open.



A. T. Elwes, Del.

Cases of the Caddis Worm.



THE MAY FLY.—GREEN AND GREY DRAKE.
(*Ephemera vulgata*.)





W. F. Maples. del.



W. H. Fitch.

OAK-FEEDING SILKWORM OF CHINA.
Antheraea Pernyi, Guer. Mene.



SOUTH AMERICAN BUTTERFLIES.

Illustrating Mimetic Analogy.

- 1. *Leptalis Nehemia*.
- 2. *Leptalis Theonoe*,
var. *Leuconoe*.
- 2a. *Ithomia Ilerdina*.

- 3. *Leptalis Orise*.
- 3a. *Methona Psidu*.
- 4. *Leptalis Theonoe*.
- 4a. *Ithomia Flora*.



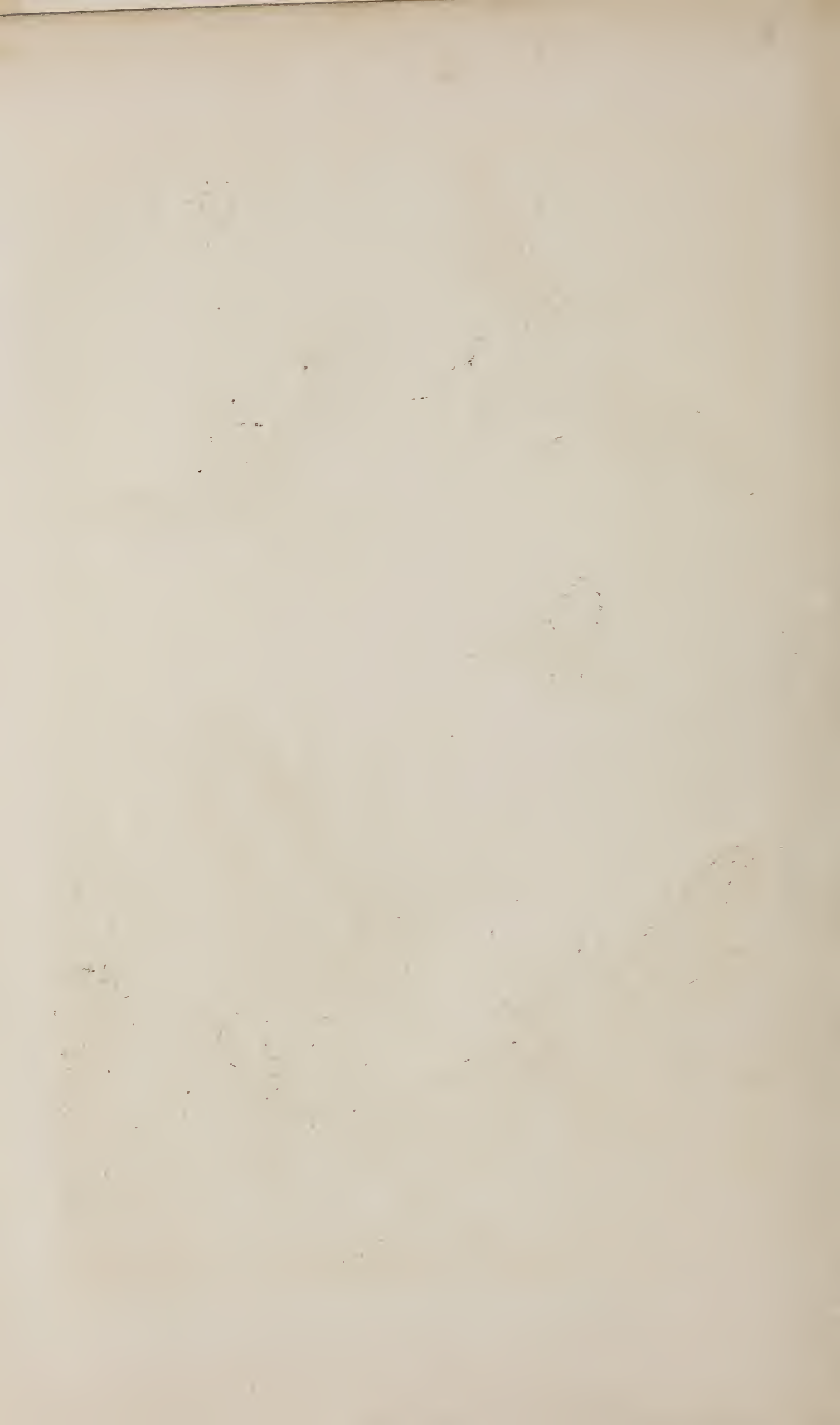
COLEOPHORA, (Tent-makers.)





BEEES AND THEIR COUNTERFEITS.

- | | |
|--------------------------------------|----------------------------------|
| 1. <i>Xylocopa nigrita</i> (male.) | 4. <i>Chrysantheda montana</i> . |
| 2. <i>Xylocopa nigrita</i> (female.) | 5. <i>Euglossa cordata</i> . |
| 3. <i>Euglossa dimidiata</i> . | 6. <i>Anthophora elegans</i> . |
| 7. <i>Clerusa picta</i> . | |



n.s



9

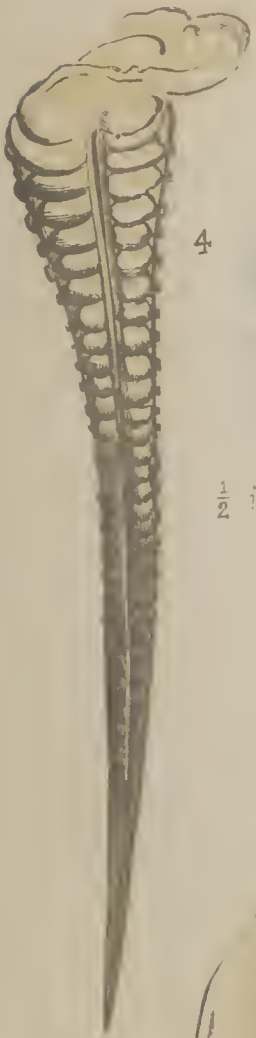


1

n.s

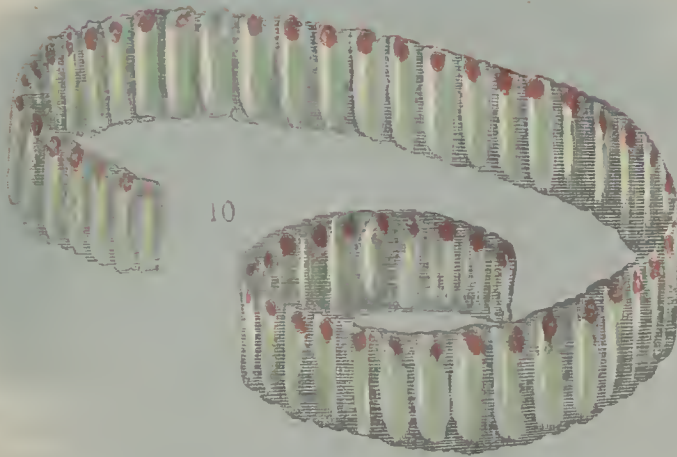


7



4

$\frac{1}{2}$ in



10

11

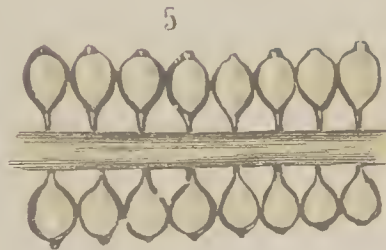
∂^x

$\frac{1}{2}$ in



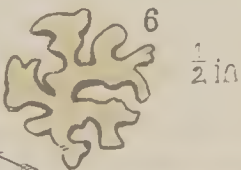
2

n.s



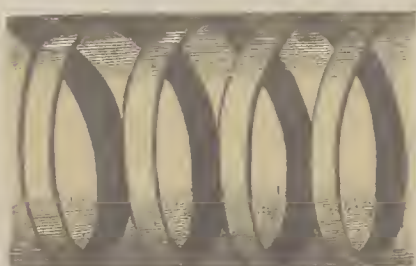
5

$\frac{1}{4}$ in

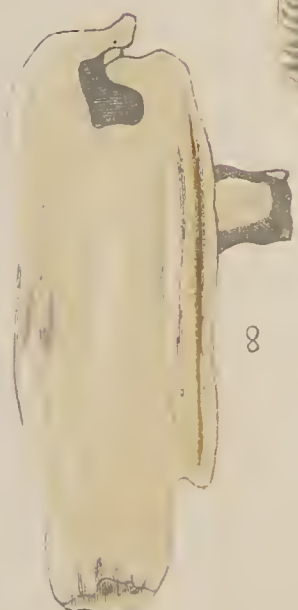


$\frac{1}{2}$ in

3



$\frac{1}{2}$ in



8

n.s



SEA LAMPREY.



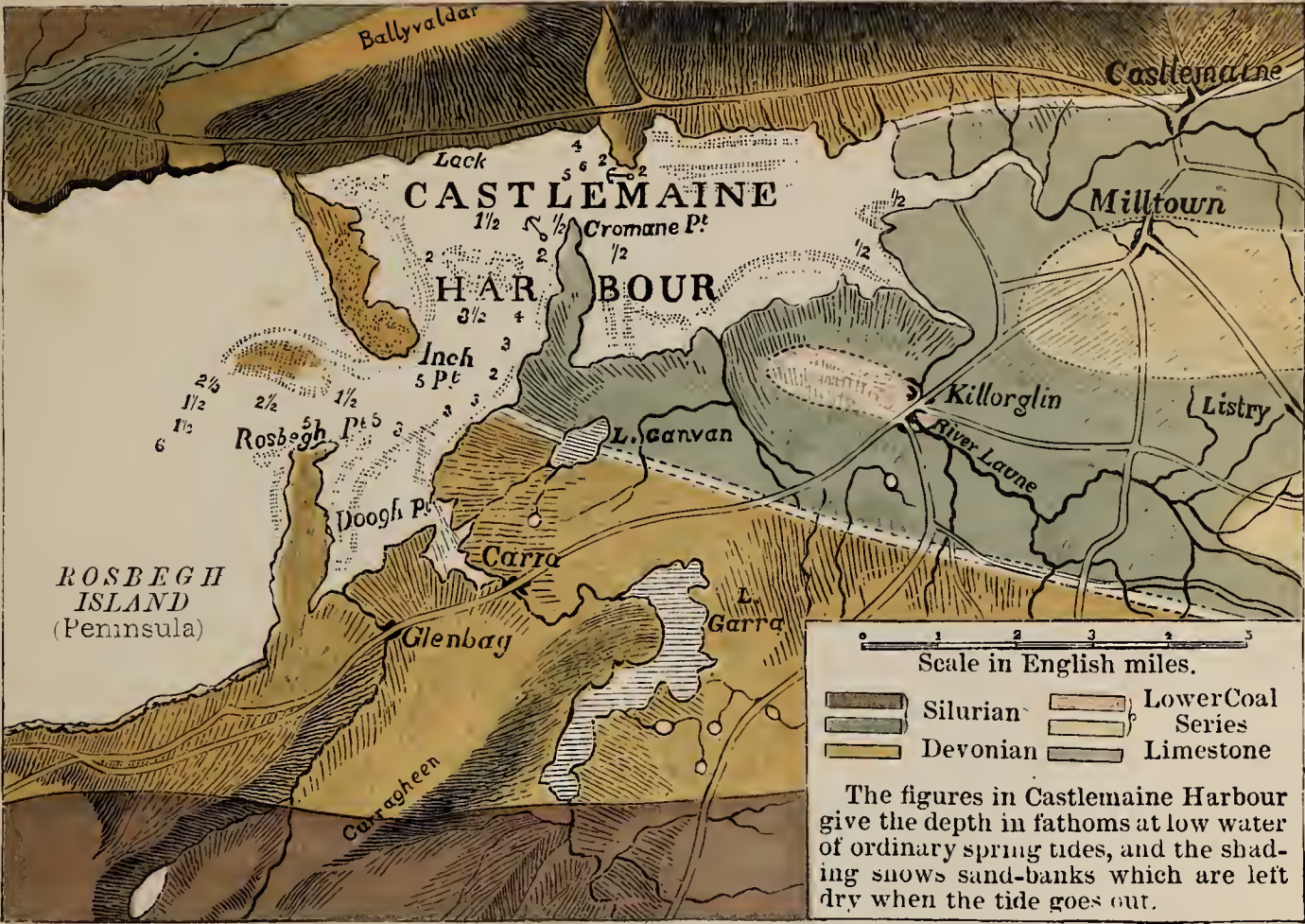






EGG OF *NEREIS (PALAEMON) CRISTATUS* AND ITS DEVELOPMENT.

Fig. 1. Mar. 27. Fig. 2. May 20. Fig. 3. June 2. Fig. 4. June 4. Fig. 5. June 6.
Fig. 6. June 8. Figs. 1 to 5 mag. 6 diameters. Fig. 6 mag. 12.



Map of a small portion of the County of Kerry, showing the district in which the Natterjack Toad is found indigenous.



* Natterjack Toad (*Bufo Calamita*) from Co. Kerry.



SMOOTH WATER

Chironella levis.



CHAMELEON.



Archæopteryx lithographica. H. VON MEYER.
Jahrbuch für Mineral: 30 Sept., 1861.
Griphosaurus problematicus. A. WAGNER.
1861, Sitzung: der Münchner Akad: der Wiss.
Griphornis longicaudatus. OWEN.
Nov., 1862, Trans: Royal Society.



BRITISH WOODPECKERS.



BLUE-CHEEKED BARBET.
Megalaima asiatica, (Latham.)



WHITE-HEADED WOODPECKER,
Picus albolarvatus, (Baird.)



THE KING PENGUIN.
Apterodytes Pennantii.



NAKED-THROATED COTINGA.

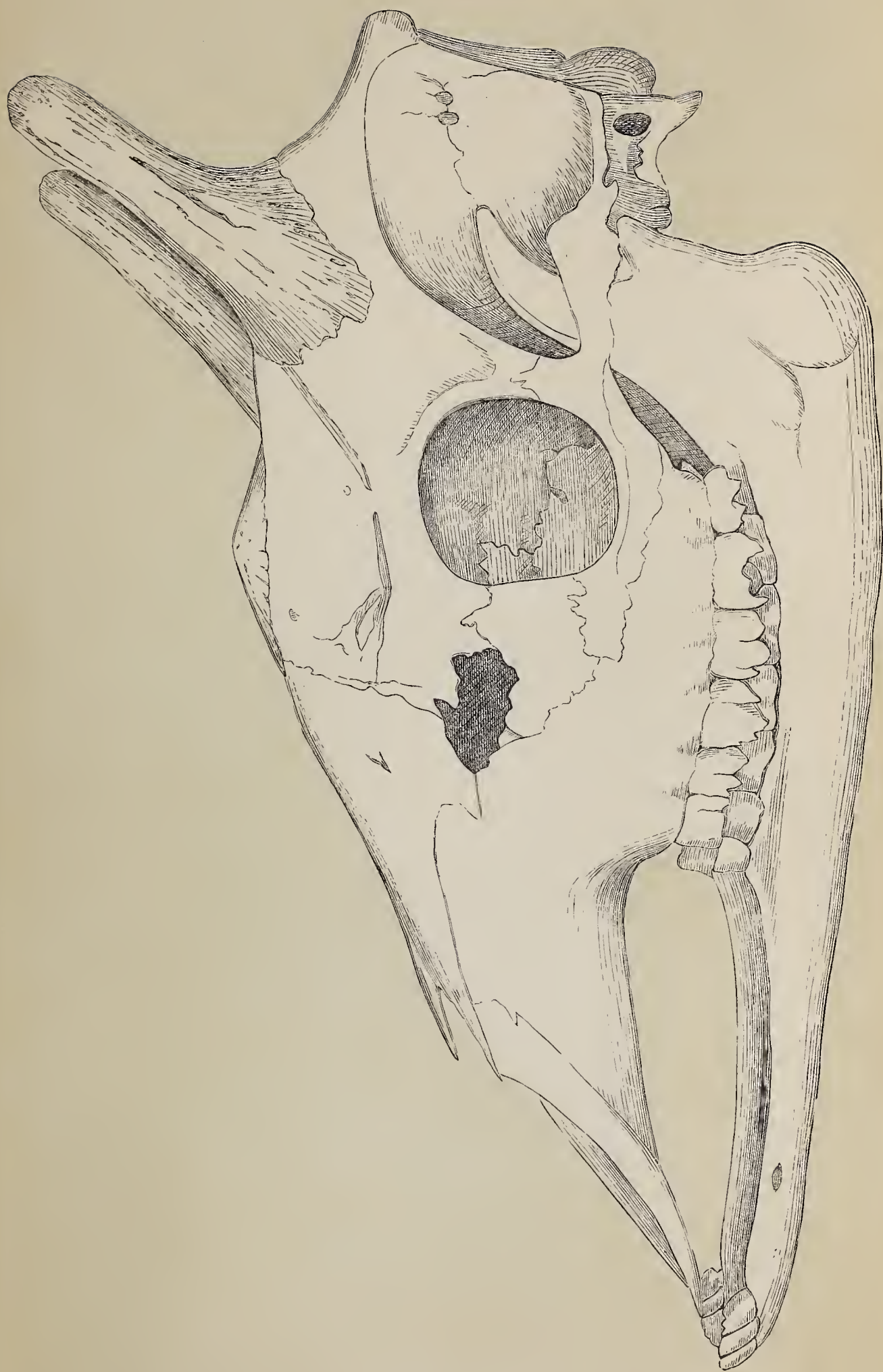
Chasmorhynchus nudicollis.



A NEW MUSK-RAT.
Fiber osoyoosensis, Lord.



TWO-HORNED RHINOCEROS,—RHINOCEROS BICORNIS.



Skull of a young Giraffe, showing the third or mesial horn.



Helsby & Co., photo.

Sculptured Monolith Portal at Tia Huanaco, Bolivia.

